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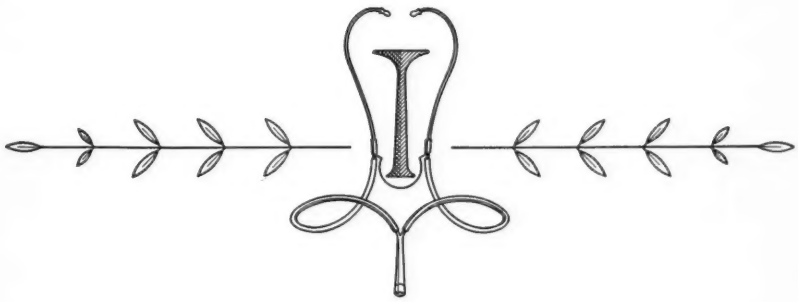

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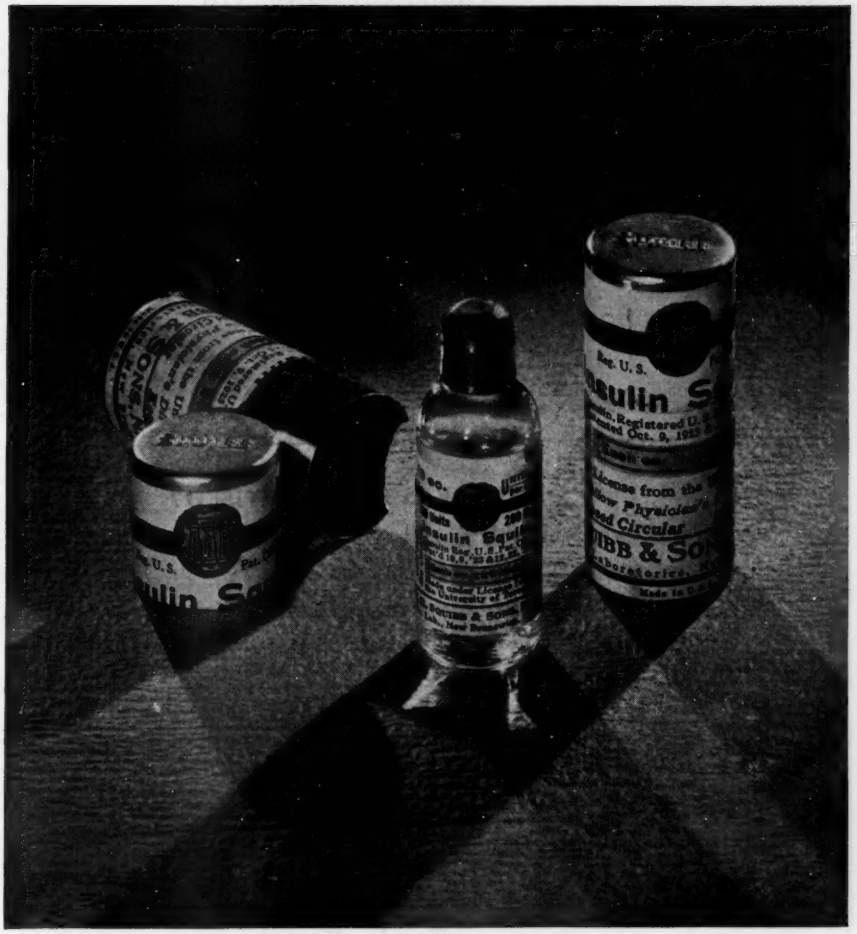

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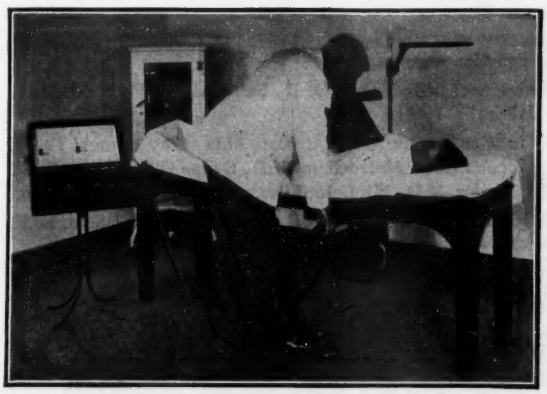

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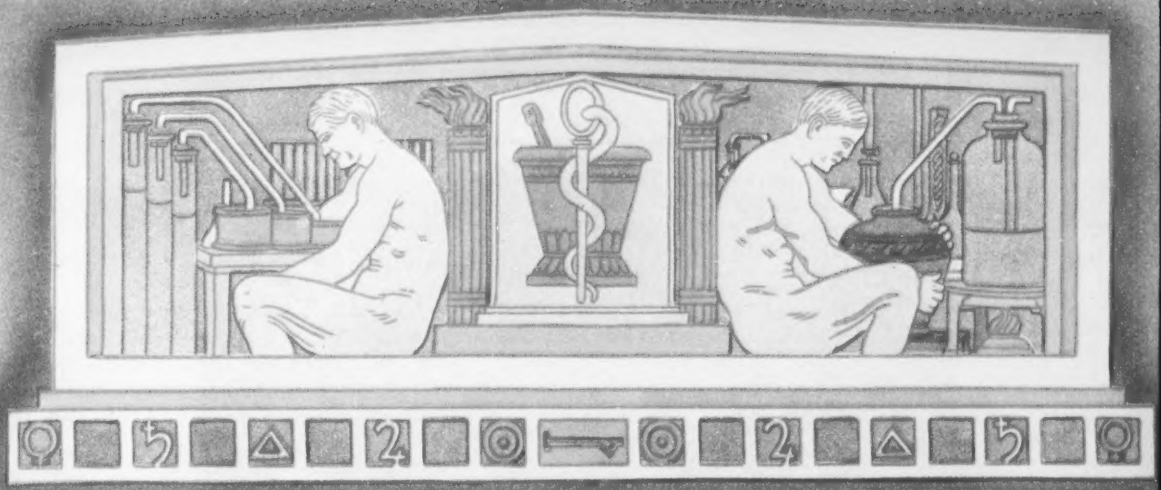

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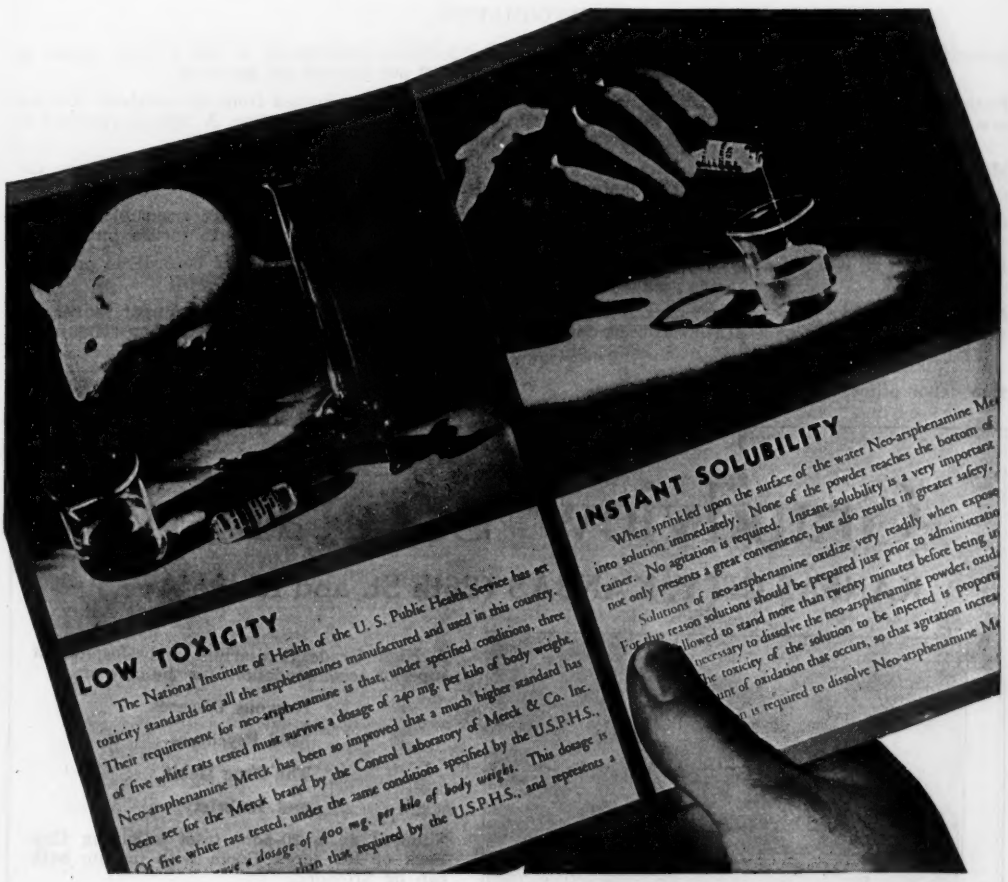
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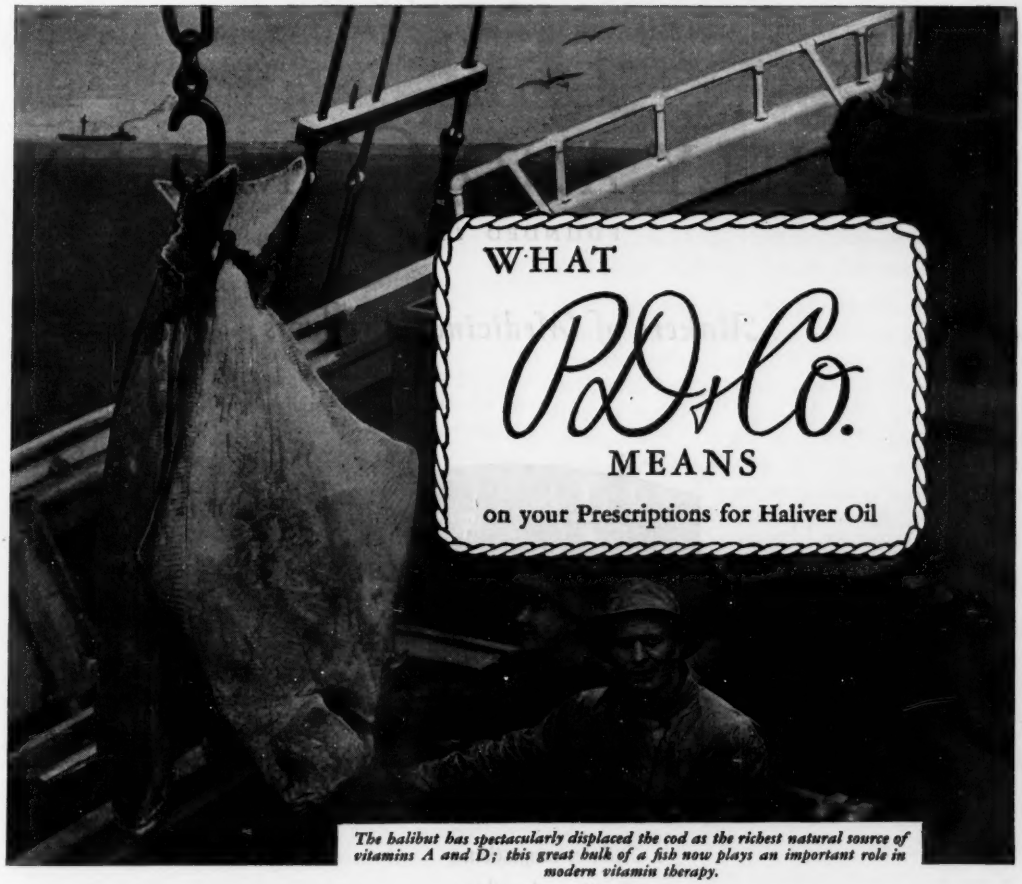

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HYPERPARATHYROIDISM*

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Hyperparathyroidism, a recently recognized clinical entity occurring usually in adults, more often in females than in males, and running a course of years rather than months, is characterized by skeletal changes, renal and gastrointestinal symptoms, alterations in the metabolism of calcium and phosphorus associated with hypercalcemia, hypophosphatemia, and hypercalciuria, and in addition, by radiologic signs, chiefly decalcification and cyst formation.

Ten years ago knowledge of the functions and dysfunctions of the parathyroid glands was extremely sketchy. Their physiologic action was quite inaccurately understood and the fact that they were associated in some way with calcium metabolism, and that postoperative tetany developed when they were injured or removed in the course of operations on the thyroid gland, were the main facts recognized.

However, today accurate information of the clinical course of hyperparathyroidism, its experimental reproduction in animals, and the successful cure or arrest of lesions caused by the overproduction of parathormone by abnormal parathyroid tissue, are no longer considered unique.

A more or less extensive literature on hyperparathyroidism is rapidly developing and increasing interest is being manifested in the various phases of the disease. In 1891 von Recklinghausen described under the term "osteitis fibrosa cystica" a condition of deformity and softening of the bones which was associated with certain reddish-brown tumors. The marked decalcification which softened the bones to an almost cartilaginous state differentiated it from osteomalacia as the characteristic pathological finding of the disease. Fibrous tissue was noted to replace the bony material, rarefaction of the cortex was present, and cysts and giant cell tumors were observed.

Following von Recklinghausen's publication of the symptomatology and pathology of this clinical entity, Askanazy, in 1904 published the autopsy findings of a case of "osteitis fibrosa cystica" associated with a parathyroid tumor. Three years later Erdheim's report of three cases of osteomalacia associated with parathyroid tumors appeared, and subsequently the literature began to be dotted with more than an occasional case report. In 1925 Hoffheinz reviewed forty-five reported cases of demonstrable enlargement of the parathyroid glands. Skeletal changes were noted in twenty-seven of these cases, "osteitis fibrosa cystica" in seventeen, osteomalacia in eight, and rickets in two. Recently Gutman, Swenson, and Parsons in a stimulating article appearing in the Journal of the American Medical Association, correlated data on 115 published cases of hyperparathyroidism, eighty-six of which were females and twenty-nine males.

The disturbance in chemical phenomena associated with hyperparathyroidism apparently was first noted in 1912 by Jacoby and Schroth who detected excessive urinary excretion of calcium by a patient suffering from this disease. About the same time Greenwald noted a relationship between parathyroid glands and the metabolism of phosphorus, finding markedly decreased excretion of the latter by parathyroidectomized dogs. MacCallum and Voegtlin demonstrated the fall of serum calcium in parathyroidectomized dogs and the relief of symptoms of tetany by the administration of calcium salts.

A better understanding of the physiology of the parathyroid glands was markedly forwarded by the work of many observers, particularly Hunter, Aub, Collip, and Hanson. A great impulse to the study of these glands came when Hanson in 1924, and Collip in 1925, discovered an active parathyroid extract, parathor-mone. Collip demonstrated that it was possible to elevate the serum calcium in para-

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thyroidectomized dogs by the administration of this hormone. Indeed, he was able to produce, by repeated administration, hypercalcemia associated with many of the clinical symptoms of hyperparathyroidism.

Hunter and Aub both demonstrated that when para-thor-mone was administered to patients suffering from chronic lead poisoning, the level of serum calcium was only slightly elevated; yet there was a rise in the excretion of urinary calcium to several times the normal level. It now appears to be satisfactorily settled that after the first administration of para-thormone, there is a fall of serum phosphorus as well as an increase in the excretion of phosphorus, but that the excretion of calcium and the increase of serum calcium are not so prompt.

In addition, clinical features of generalized "osteitis fibrosa cystica," with the exception of the bony lesions demonstrated by *x*-ray, have been produced experimentally by the administration of para-thor-mone. After the association of bony dystrophy and the other clinical symptoms of osteitis fibrosa had been established as being associated with tumors of the parathyroid glands, surgical extirpation was undertaken, first by Mandl in 1926. In this case the neck was explored with the demonstration of a parathyroid tumor, which was removed. Subsequently, a disappearance of the bone pain occurred shortly with an accompanying marked fall in the urinary calcium excretion. The progress of the disease was definitely checked.

In this country Barr, Bulger, and Dixon reported the first case of hyperparathyroidism associated with bony lesions, in 1929, and subsequently in the same year, Wilder reported a second case which I operated on December 17, 1928, removing a parathyroid tumor from the right inferior pole of the thyroid gland. In the succeeding years interest in the subject of the parathyroid glands developed enormously and Ballin of Detroit, in 1931, reviewed before the American Surgical Association, forty-five parathyroidectomies done on his service. This series included not only tumors of the thyroid glands which were operated upon for osteomalacic conditions, but the removal of normal parathyroids for other disorders.

Parathyroidectomy for ankylosing polyarthritis was advocated in 1925 by Oppel and Ssamarin who reported seventy such operations for this disease. Leriche following this lead, but being more conservative in his selection of cases, performed a number of parathyroidectomies for this same lesion. Later, Ballin reported sixteen operations for arthritis.

The acceptance of the diagnosis of hyperparathyroidism in these cases in light of the follow-up studies and the laboratory data upon which the diagnosis was made, cannot be accepted without reservations. In Oppel's work, no metabolic studies were done and the diagnosis was made upon single determinations of serum calcium, nor was there any dietary control. Recurrence of symptoms in some of these cases likewise occurred rapidly. Leriche recommended that where the parathyroid body could not be found on exploration, ligation of the inferior thyroid artery be performed to insure a "physiologic parathyroidectomy." My experience with ligation of one or both inferior thyroid vessels in thyroidectomy to control bleeding impresses me with the free anastomosis between them and the superior vessels because of the failure of tetany ever to develop following ligation of both inferior thyroid arteries under these circumstances. Again, a better knowledge of the anatomy and location of the parathyroid glands urges that this is a physiologically unsound problem, many parathyroid glands being situated so as to receive blood supply from the superior thyroid vessels or even from other vessels of the neck and mediastinum.

This inclination to extend the scope of cases selected for parathyroidectomy led Ballin to include several additional types: first, Padget's disease; second, the ankylosing arthritic type; third, the juvenile type, and fourth, the myasthenic type.

Certainly it is far from being settled at present that Padget's disease is the same as "osteitis fibrosa cystica," and the tendency among surgeons is not to include this variety. The juvenile type of which Ballin reports three cases, is the entity formerly regarded as osteochondroma and the experience is too limited to accept this group unqualifiedly.

The myasthenic type which simulates myasthenia gravis, muscular atrophy, et cetera, likewise is not sufficiently demonstrated yet, I think, to understand the exact relationship, if any, to hyperparathyroidism.

By and large, it is evident that after observation of the clinical syndrome and experimental data of osteitis fibrosa, the assumption that disturbances of the parathyroid gland are responsible for these other bony ailments is inconclusive, and that the removal of normal parathyroids, or so-called hyperplastic thyroids has not given

the satisfactory end-results anticipated.

Churchill who has had wide experience in this particular field, sums up the question of hyperplasia of the parathyroid body in producing symptoms as follows: "A diffuse hyperplasia of all of the parathyroid bodies may exist in disease states associated with a low serum calcium such as osteomalacia, rickets, and senile osteoporosis. According to Albright, this is presumably a compensatory mechanism and is not usually associated with an elevation of the serum calcium. Diffuse hyperplasia of the parathyroids associated with hyperparathyroidism, in other words a state of affairs analogous to Grave's disease of the thyroid, has not as yet been recognized as a disease entity."

SYMPTOMATOLOGY

A typical syndrome now recognized as hyperparathyroidism is accurately diagnosed in the majority of instances by standards of criteria which usually revolve around the following: First, a prolonged history of skeletal pain and muscular weakness confining the patient to bed, and frequently associated with one or more fractures; second, definite roentgenological evidence of general bony decalcification involving numerous bones, and frequently the entire skeleton; third, normal or elevated amount of calcium in the blood serum associated with increased excretion of calcium giving a negative calcium balance; and fourth, normal or decreased phosphorus in the blood serum with excessive excretion of phosphorus resulting in a negative phosphorus balance. Additional secondary findings such as general myotonia, anemia, loss of weight, gastro-intestinal symptoms such as anorexia, cramping, nausea, vomiting, and not uncommonly polydipsia or polyuria and associated nephrolithiasis are frequently encountered. The muscle weakness and pain are of more than passing importance since they are severe in their manifestations and extend over a long period of time. Usually the patients are bedridden and have the general appearance of victims of a wasting, chronic, long-continued disease. In one of my cases the symptoms had persisted over four years, and in frequent other reports found in the literature two or three year periods are not uncommon. Parathyroidism is the antithesis of tetany. It is caused by an overproduction of para-thormone by abnormal parathyroid tissue.

The pathology which involves the bones and the picture which is most characteristic of the disease gives rise to many secondary symptoms. As the deformity of the long bones increases, and general wasting becomes evident, there is a dimunition of the height of the patient which may be called Ballin's sign since he lays great stress on it. They become stooped, the lower ribs approach the flattened-out-pelvis, the spine becomes bowed, the vertebrae become flattened-out and cause pressure on the intravertebral nerves, and fracture occurs frequently in the long bones.

With the demineralization of the bony skeleton, there appears an increased excretion of calcium in the urine as well as a high concentration of serum calcium, (normal, 8-11 mgs., parathyroidism, 12-20 mgs.). Even in the higher readings, however, there may be disease when hypercalcemia is temporarily or continually absent. One agrees with Ballin who made the first observation that the absence of hypercalcemia does not exclude the diagnosis of hyperparathyroidism in the presence of other symptoms.

The concentration of phosphatase in the blood plasma is elevated in hyperparathyroidism. This enzyme plays some specific role in the maintenance of calcium and phosphorus in the tissue.

Perhaps the most important findings in the diagnosis of hyperparathyroidism are the almost pathognomonic data obtained by Röntgenograms. The typical radiologic evidence is that of generalized osteoporosis, cystic lesions, and deformity. Attention has been called by radiologists to the characteristics of this osteoporosis which is miliary or granular in appearance. The plates appear as though they were undeveloped. The most characteristic picture is that of the skull bones apparently. In addition, the bone trabeculae and cortical bone are thinned, and areas of subperiosteal absorption are seen in some of the long bones.

It is necessary to differentiate hyperparathyroidism from a number of diseases, mainly, multiple myeloma, metastatic bone malignancies, dietary deficiencies, osteomalacia and some types of osteoporosis associated with chronic steatorrhea and Padget's disease. It should be considered as an etiologic factor in diseases of the bone which are associated with spontaneous fracture or swelling and grave deformity. Obscure cases presenting renal symptoms or unexplainable asthenia, or persistent bone pains frequently are explained on the basis of hyperparathyroidism. Certainly their exclusion usually

is not difficult if one takes into consideration the clinical symptoms and the history, the *x*-ray studies of the bones, and the chemical estimates of serum calcium and phosphate.

TREATMENT

The removal of parathyroid adenomas for the symptomatology common to osteitis fibrosa is followed generally by as spectacular recovery as one sees from subtotal thyroidectomy for exopthalmic goiter. Technically, the procedure usually is not difficult, although occasionally search for the parathyroid gland or tumor is extraordinarily difficult and leads one into exploration of the retrosternal areas, the retrotracheal zone, and behind the deep fascias of the neck.

The parathyroid glands described in most of the old anatomies as being four in number and lying one at each pole of the thyroid gland frequently do not, in my experience, conform to these standard locations. To Terry and his associates we are indebted for a great deal of information on their anatomical location, information which in the course of thyroidectomy is extremely valuable in the preservation of these glands and in avoidance of postoperative development of tetany.

Terry showed that frequently the two upper parathyroids lie along the course of the superior thyroid vessels and on the anterior surface of the thyroid gland. Occasionally the parathyroids are situated in the substance of the gland itself, and less frequently they are found retro-tracheal and substernal. In the first case of parathyroid tumor which I operated upon, I found the gland easily because it was situated in the classical position at the inferior pole of the right lobe of the thyroid. In the second case which I did, only after considerable difficulty was the parathyroid tumor located between the trachea and the esophagus. I had made a careful search of all four poles of the thyroid gland without locating either a parathyroid tumor or a parathyroid gland. Then the right inferior thyroid vessel was ligated and the gland rotated mesially. This brought into view a bluish encapsulated tumor about the size of a small olive and situated between the trachea and the esophagus. It proved to be a typical thyroid adenoma, the resection of which was followed by recovery.

Churchill has reported a most interesting and unusual case of intrathoracic tumor which he resected. Recently Walton reported a case upon which he operated the second time searching for a parathyroid tumor. After incision of the deep cervical fascia, he removed two parathyroid tumors, one lying behind the esophagus, and the second one in the posterior mediastinum in front of the body of the second and third thoracic vertebrae.

The question of multiple tumors is a point of importance which should always be borne in mind, and which this case emphasizes. In a review by Hunter of thirty-two cases of hyperparathyroidism, in twenty-one operated upon, one parathyroid tumor was removed, and in two cases, two parathyroid tumors were removed at operation. In this report, in addition, no parathyroid tumors could be found on examination in four cases, and in the other five cases operation was performed in four, but the tumors were found at necropsy, one in three cases, and two in another. An obvious correlary is that the possibility of multiple tumors should always be kept in mind when the exploration is negative, for there is the possibility that the surgeon is overlooking a tumor unless he has carried his search into the anterior and posterior mediastinal spaces, as well as under the deep cervical fascia.

The position of the tumor and its size, the musculature of the neck, and other anatomical factors operate together to make it often very difficult and usually impossible to palpate the tumor in the neck before operation. I have seen only one parathyroid tumor which could be palpated prior to operation and that was located at the right lower pole of the thyroid gland and felt very much as an adenoma of the thyroid gland ordinarily feels.

The great care which is exercised in the resection or removal of these parathyroid tumors is necessary in order to avoid injury to the recurrent laryngeal nerve, frequently, perhaps more often than not, where the tumor does not present itself quickly at the beginning of the exploration, one finds it necessary to ligate one or both of the inferior thyroid vessels in order to mobilize the gland sufficiently to search in the retro-tracheal, deep cervical, and substernal spaces. Such ligation of the vessel usually should be undertaken after exposure of its origin from the thyroid axis, as well as a careful demonstration of its relationship to the recurrent laryngeal nerve.

Usually immediate relief of symptoms follows parathyroidectomy. The calcium returns to normal quickly, but occasionally falls to a

subnormal level with evidences of a mild tetany. This is controlled by the administration of para-thor-mone, calcium salts, and irradiated ergosterol. This, likewise, calls attention to the point Stone brought out that perhaps in operations for parathyroid tumors resection of the tumor rather than the removal of the whole is desirable to prevent the development of tetany. The suggestion is a sensible one since in the early thyroid surgery the total gland was removed, later experience bringing the recognition of the fact that this produced myxedema. It may be that the removal of a parathyroid tumor, particularly where we are not certain of either the presence or the function of the other parathyroid glands, had best be done in this way. A case which I reported before the Southern Surgical Association December, 1932, lends support to this view.

In this case following removal of the parathyroid tumor, the serum calcium which had ranged from 10.6 mgs. to 11.8 mgs. during a period of two weeks' observation, fell rapidly to 7.5 and then to 4.6 mgs., at which time a definite tetany developed despite administration of calcium. Vigorous treatment with para-thormone and calcium salts returned the calcium balance to a positive one, however. The serum phosphatase at this time was decreased to 22 units, whereas during the observation period it was observed as being 61.7 units.

Aside from these upsets in the metabolism of calcium and phosphorus which are usually controlled easily, and on return to normal remain with a positive balance, the other symptomatic evidences of relief are rapid and marked. Pain disappears quickly and promptly and usually there is a definite and early improvement in the general health of the individual. Bony changes are reported by some observers to improve following parathyroidectomy, and in the main, there seems to be small evidence that there is much effort to return to normal as one would naturally expect. Perhaps *x*-ray studies of the bony lesions over a long period of time may reveal some such evidence in the future.

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PUERPERAL INFECTION*

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In spite of the great advances that have been made in surgical technique in late years, we still are faced with the fact that from 6,000 to 7,000 deaths occur in the United States annually because of childbed fever, and that at least 100,000 other lives are more or less wrecked by this disease.

It is 85 years since Semmelweis pointed the way to the prevention of puerperal fever. This brought about a tremendous reduction in the mortality from puerperal fever, but has not eliminated it. There are still cases of puerperal infection, ranging from a mild to a very severe type, present in our well regulated hospitals, where aseptic and antiseptic techniques are conscientiously followed. In view of these facts it seems justifiable to bring this matter up for discussion.

The situation in the United States is probably no worse than in any other part of the

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world, although statistics are used at times to prove that "the death rate from childbed fever is higher than that of any other civilized land." Quoting from the *Journal of the American Medical Association* (March 12, 1932), "It is rather sad, therefore, to have deKruif argue that any considerable number of physicians do not know about asepsis or that they are too busy to practice it. His cure for the situation is apparently to urge boycott for any physician in whose practice there occurs a death from puerperal infection. No doubt this would promptly bring about a boycott of every competent obstetrician, since even under the best of conditions, with the most noted of authorities in charge, cases of puerperal infection do occur. Actual epidemics have developed in well established lying-in hospitals. Medicine knows that infection is preventable, but disease prevention is costly and the suggestion that every baby should be born in an isolated maternity hospital is Utopian. As well believe in the 'Brave New World' of Aldous Huxley and have all of them raised from eggs in glass jars. Physicians may prevent infection from without the body, but there are cases of infection from within.

"The prevention of puerperal infection will not be realized by boycotts of doctors in whose practice cases occur. At this time, obstetric care in the United States for the vast majority of women is as good if not better than the majority of civilized countries. Therefore, it is unfair to the medical profession of this country to make them the scapegoats for promotion of any campaign or for building interest in the eulogy of a departed scientist. The life of Semmelweis needed no such false emphasis to attract intelligent readers."

It is seldom admitted in American literature that autogenous infection may occur but we will try to show that it does occur rather frequently, that it can cause death, and what type of organisms are to be found involved in these cases, and perhaps offer a suggestion as to the prevention and treatment of such cases.

According to Williams, "Puerperal infection includes the various morbid conditions which result from the entrance of infective microorganisms into the female generative tract during labor or the puerperium."

The condition has been recognized since earliest history. Hippocrates described the symptoms and course of the disease with great accuracy and thought it was due to the retention of lochia. Ambrose Paré (1575) believed the cause to be the entrance of cold air into the uterus at the time of delivery.

Kirkland (1774) considered it a contagious disease causing inflammation of the uterus due to the absorption of putrid material. He emphasized drainage and the removal of decomposing products from the uterine cavity; and contemplated the use of some antiseptic injection but did not use it.

Collins adopted the use of disinfectants on his service at the Rotunda Hospital (1826-33) with the practical elimination of the disease.

Holmes (1843) wrote his essay on "The Contagiousness of Puerperal Fever" after careful study of the subject, but his views met with strong opposition in this country and had but little influence upon the profession.

Semmelweis (1846) noticed the difference in the maternal mortality in the two divisions of the Lying-in Hospital in Vienna. The first division attended by doctors had a mortality of 11.4 per cent, while the second division attended by midwives had a mortality of 2.7 per cent from puerperal fever. He was at a loss to explain these findings until the death of a colleague, due to septicemia following an accidental wound during an autopsy, gave him a clue. The postmortem in this case struck Semmelweis by its similarity to those he had made on puerperal fever cases. The relationship was quite clear. He instituted the technique of washing the hands followed by the use of chlorine water. In the first year the mortality dropped to three per cent and in the second year, to 1.27 per cent. This was the first work which pointed out that this disease was almost always conveyed from without and started with infection of the uterine wound.

As the result of the work of Pasteur (1860) on the germ theory of disease and Lister (1867) on antisepsis, the true value of Semmelweis' contribution became apparent.

With the development of antisepsis and asepsis the maternal mortality due to infection dropped decidedly, but has not been eliminated. The number of cases due to the usual pyogenic bacteria, are very few. However, there continued to be cases which were febrile and clinically puerperal infection, but cultures were negative. In 1910, Schottmuller indicated the anaerobic streptococcus as a virulent pathogenic organism, frequently associated with uterine infection. This type of organism does not grow under the ordinary aerobic conditions and was missed, therefore, in cultures from these cases which

clinically showed evidence of infection. This work was confirmed by Schwarz, Dieckmann and Brown, who have shown the anaerobic streptococcus to be an offender in 80.5 per cent of the cases of uterine infection. These findings seem to explain the cause of what has been called sapremia in cases of clinical infection with negative aerobic cultures.

The following table shows the frequency of anaerobic streptococci in puerperal infection. Under "mixed bacteria" are included cases that had both aerobic and anaerobic organisms present. The relatively few cases showing septicemia due to anaerobic streptococci are due in part, at least, to the blood stream being an unsuitable medium for the development of this type of organism, until the oxygen tension has become so low that the patient is usually moribund.

Early in the disease we can consider puerperal infection as a more or less superficial wound infection. In a portion of such cases recovery is spontaneous if drainage is sufficient. On the other hand, certain of these cases have a spread of this superficial infection to the deeper tissues. The preliminary endometritis may go on to a metritis, parametritis, pelvic thrombophlebitis, pelvic abscess, pelvic peritonitis, general peritonitis, septicemia, lung infarction and end in death. Therefore, it is important to act in the early part of the course of the disease, if at all.

At first the condition is one of retention of protein material, blood clots, pieces of membranes, bits of placental tissue, or decidual tissue, which is not in contact with the maternal circulation and is contaminated by various organisms. If drainage from the uterine cavity to the outside is insufficient, then these organisms begin to invade the maternal tissues and cause pathologic conditions as mentioned above. In addition to the bacterial invasion, there is also the absorption of various protein split products formed as a result of the metabolic activity of these organisms upon the tissues retained within the uterine cavity. This is especially true of cases in which anaerobic streptococci are present because of the rather marked proteolytic characteristic of these organisms. Therefore, by the removal of the debris from the uterine cavity we not only remove large numbers of bacteria but also the by-products of their metabolism which have intoxicated the patient. Treatment should be instituted early in order to prevent the spread of the local reaction and to detoxify the patient.

Treatment has been divided into (1) conservative and (2) active. It appears as the result of the foregoing statements that the conservative method would be an active method of treatment as has been used in this series of cases. In other words, the inactive treatment is not always conservative, because it may permit the spread of the local infection.

When a patient in the puerperal state develops signs of infection, which cannot be accounted for after the usual diagnostic methods have been used to rule out all other possible infections, then it seems justifiable to investigate the uterine cavity.

This is done with a minimal amount of manipulation in order that further trauma may be avoided. A general anesthetic is not to be used because this would remove the inhibiting influence of the patient's response to pain which is usually indicative of too active manipulation. The patient should be under the influence of some sedative so as not to be too apprehensive. Morphia (gr. 1/6) with hyoscine (1 cc.) followed by hyoscine (1 cc.) in forty-five minutes are given so that the second dose is at least thirty minutes before the patient is prepared for examination.

The perineum is prepared with five per cent neutral acriflavin in 10 per cent acetone and 50 per cent ethyl alcohol. The bladder is not

Number of Admissions July 1, 1924 to January 1, 1933.	Number of Deliveries	Number of Cases of Puerperal Infection	Number of Deaths
12,960	10,879	187	28

Type of Infection	Number of Cases	Aerobic Bacteria	Anaerobic Bacteria	Mixed Bacteria	Negative Cultures	Mortality
Acute Endometritis	175	33	103	38	1	0
Pelvic Cellulitis	30	8	14	7	1	0
Peritonitis	21	4	8	9	0	14
Pelvic Abscess	15	5	5	4	1	1
Pelvic Thrombophlebitis	20	3	13	1	3	4
Septicemia	40	15	15	10	0	9
Cases of Suspected Endometritis	23	0	0	0	23	0
Anaerobic organisms present in 80.5% of cases of Endometritis.					Total	28

catheterized because of the danger of contamination which may frequently superimpose a urinary infection. Drapes are placed. A Graves' vaginal speculum is used to obtain exposure of the cervix. If this is not satisfactory, large vaginal retractors will be necessary. The vagina and cervix are then prepared with the above solution of five per cent neutral acriflavin. Treat the cervical canal with this solution and then dry carefully with sterile gauze. A culture is then obtained from the uterine cavity with a Little tube. If it is not possible to have careful bacteriologic investigation of the material obtained, at least several smears of material can be made and stained by the Gram method. This has been done routinely and found to check very well with the bacteriologic findings. Both aerobic and anaerobic blood agar slants should be made. The Wright anaerobic technique is used in search for anaerobic organisms.

After the culture has been obtained the uterine cavity is very carefully investigated with a Foerster's sponge holding forceps, plain jaw. Dilatation of the cervix is usually sufficient to permit this. The sponge forceps is inserted closed to the depth desired, opened, closed, and removed to see if any tissue has fallen within the jaws. The forceps should not be advanced with the jaws open because of the danger of grasping the uterine muscle. The uterus is usually found to be relaxed in such cases. After mechanical removal of any retained debris, the patient is given an intra-uterine douche using a Bozeman's extra large intra-uterine douche nozzle. This instrument permits the free exit of the solution from the uterine cavity without any pressure being established. Two liters of a 1:1000 solution of potassium permanganate in sterile water at 105° to 110° F. are used. This solution is usually acidulated with 50 cc. N/1 sulphuric acid. The bottom of the douche can is held at the level of the symphysis so that the water pressure of the solution as it enters the douche nozzle is 15 cm. or less. Such a douche results in (1) removal of small bits of tissue remaining after mechanical emptying of the cavity, (2) firm contraction of the uterus, including the cervix, so that bleeding is controlled and sinuses are closed, (3) elimination of the putrid discharge which is characteristic of the anaerobic infections.

The patient is then examined carefully for evidence of any spread of the uterine infection, pelvic abscess or thrombophlebitis. This is also done without an anesthetic in order that the patient's reaction to pain will limit the extent of the examination. Too much pressure will not be used, which might cause rupture of an abscess internally.

As a prophylactic treatment of puerperal infection, the use of an antiseptic vaginal instillation during labor offers some hope. At present a solution of one per cent neutral acriflavin in glycerin is being used because of the apparent specificity of acriflavin for cocci, the chief offenders having been found to be cocci. The glycerin has a definite antiseptic value likewise. Routinely 7 or 8 cc. of this solution are instilled into the vagina with a one-fourth ounce rubber tipped urethral syringe before the patient is examined and every six hours during a prolonged labor. Morbidity figures have been reduced by about one-half since the adoption of this technique.

RESULTS

1. Reduction of morbidity rate.
2. Shortening of the course of the disease.
3. Lessening of the severity of the disease.
4. Fewer complications.
5. Shorter convalescence.
6. Reduction of mortality rate.

I do not wish to introduce any radical change in the general treatment of uterine infection either postpartum or postabortal. The treatment which has been discussed should not be carried out in all cases, unless facilities are of the best and the operator understands the details of the treatment and realizes the care with which it must be done. Many cases will do quite satisfactorily without interference. Our results have shown the high incidence of anaerobic organisms as the cause of this condition and that the removal of necrotic material from the uterine cavity brings about the prompt arrest of the disease process and has not, in our experience, caused any undesirable complications.

CONCLUSION

The most satisfactory method of treatment of puerperal fever will be its prevention. The results from the use of an antiseptic instillation during labor have been gratifying in the reduction of the morbidity rate. However, if the disease occurs spontaneously or in spite of any antiseptic or aseptic technique employed, it seems that the more conservative treatment is the active treatment here described. If such treatment is to be used, it must be instituted at the earliest stage of the disease and be performed by the gentlest of technique. Pelvic examination at the time of treatment and subsequently is of the

greatest value in determining the course of the disease. An intra-uterine douche seldom needs to be repeated and if properly performed does not cause complication. Such treatment often establishes the crisis in puerperal infection and the case takes a turn for the better. In cases in which the infection has spread and is severe, palliative measures are followed and the main hope seems to lie in the use of blood transfusions given frequently and in large amounts, 500-800 cc.

BENIGN PROSTATIC OBSTRUCTION; GROSS PATHOLOGY AND ITS RELATION TO TYPE OF TREATMENT

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The introduction the last few years of a new treatment for prostatic obstruction has given impetus to a renewed and detailed study of the pathology of the prostate. Even though I have become very much interested in and enthusiastic about transurethral resections of the prostate, it is not my purpose to advocate any one type of treatment.

In this paper I wish to describe the chief types of benign prostatic obstruction, demonstrating these types by sketches, and then point out what seems to be the logical approach for the relief of the obstruction in each type.

For a classification I shall follow that of Alexander Randall who made a careful autopsy study of about 1300 cases in which group he found 222 cases of real prostatic hypertrophy. His description of this work is a classic. The benign cases are divided into median bars and hypertrophies and the hypertrophies into five main types, namely: (1) Simple bilateral lobe hypertrophy, (2) posterior commissural hypertrophy (deep middle lobe), (3) bilateral and posterior commissural lobe hypertrophy, (4) subcervical lobe hypertrophy (superficial middle lobe), (5) bilateral and subcervical lobe hypertrophy. Then there are a few other rarer types such as the anterior lobe hypertrophy, the subtrigonal lobe hypertrophy, and their combinations with the more frequent types.

As to treatment, I am taking for granted three accepted procedures: (1) Suprapubic prostatectomy, (2) perineal prostatectomy, (3) transurethral resection.

Even though transurethral resection is a very new method, or at least a recently revived method, it has rapidly taken its place as an accepted procedure in relieving a large number of these cases.

It is true that most advocates of the suprapubic operation, although they always admit that certain types should logically be removed by the perineal operation, practically always stick to their suprapubic operation. Men doing perineal operations, although they admit that certain types, like the large intravesical growths might better be taken out suprapubically, practically always do the perineal operation. And now there is a tendency by some to do all the cases by the transurethral operation even though they admit certain cases might better be done by one of the other approaches. It seems that any one of the three methods, if done expertly, will nicely take care of the majority of cases, and yet, I think that in carefully going over the different types, one can point out what seem to be the logical cases for each.

I am not saying that the gross pathology is the only consideration in determining the type of treatment. I am not unmindful of other factors such as the age and general condition of the patient, the kidney function, infections of kidney, bladder, prostate, and complications of all kinds, etc., but as the type of enlargement is one of the most constant factors to consider, when deciding on how to attack a given case, I feel justified in confining this discussion to that part of the problem.

As stated above, benign prostatic obstruction is divided into two main divisions, namely: (1) median bar, (2) hypertrophies.

The so-called "median bar" is primarily caused by an inflammatory process in the floor of the sphincter and adjacent tissue. Adjacent tissue which can harbor chronic infection consists of superficial subcervical glands, somewhat deeper subcervical glands, the prostate gland, and the seminal vesicles. It is thought that these deeper structures harboring infection stimulate hyperplasia of the floor of the internal sphincter, thus raising the floor, and that later a process of sclerosis and fibrosis takes place in this inflammatory hyperplastic tissue with a resultant lack of functioning of the sphincter and obstruction. This condition comes on slowly over a period of many years with a gradual increase in obstruction. It is entirely distinct from hypertrophy, having a recognized inflammatory etiology. The sphincter floor is raised for possibly one-half inch of its length. The pos-

terior urethroscopic view shows many of these cases to have a very abrupt rise where the bar begins, which accounts for the difficulty in catheterizing some of them with the ordinary straight catheter, because the tip runs up against this wall and does not easily ride over it.

Urologists generally agree that some type of transurethral operation should be used for their treatment as there is no tumor to enucleate in this type of case. At the present time resectoscopes using a high frequency cutting current, (the same instruments that are used for resection of the hypertrophies) are being used by the majority of us. Median bar is the indication "par excellence" for transurethral resection.

The second main division of benign obstruction consists of the various types of hypertrophy as were listed above.

It is interesting to theorize about the etiology of the hypertrophy of this gland, but as there is nothing definitely known about it, I will pass that up, except to say that in recent work done by Lower and his associates at Cleveland, they have shown that the hypophysial secretion by acting on the testicles influences secondary sex organs, including the prostate. Whether this will lead to any practical application is not yet known.

Theories about the location of the starting points of the hypertrophy, and why the enlargement takes place in certain directions are worth some discussion.

The first theory of prostatic enlargement is that the adenomatous growth simply replaces the normal gland structure, therefore originating right in the lobes of the prostate.

Another theory, which is the one that is held by a larger number of students of the subject, and possibly by the majority, is that the adenomatous enlargement begins in the periurethral glands. Figure 1 is a cross section of the posterior urethra and prostate schematically showing the location of the periurethral glands, labeled subcervical glands. According to the second theory the enlargement begins in these glands, pushes the prostatic tissue ahead of it, compresses it, and the compressed gland then forms the false capsule for the growth. Some facts that fit into this theory are: (1) That the capsule about the well enlarged prostate is histologically made up of prostatic tissue, (2) that when there are extra, usually smaller, lobes, they are always found outside of the main tumor, between it and the false capsule or compressed prostatic tissue, (3) if prostatic calculi are present along with hypertrophy they are practically always found outside of the regular enlargement in the compressed prostate or false capsule.

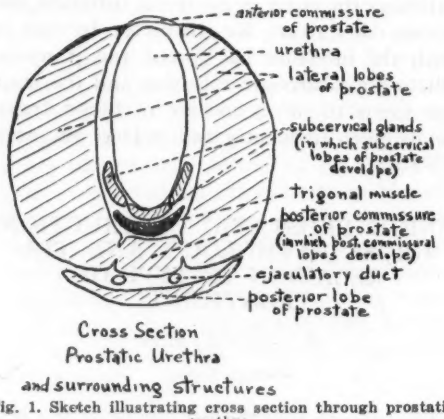

Fig. 1. Sketch illustrating cross section through prostatic urethra.

The last of the theories is a combination of the first two, namely that the enlargement arises in both the prostatic lobes proper and the periurethral glands, or in either one alone. This is the theory for which Randall feels that he collected definite evidence in his study of the many autopsy specimens. He says that he was unable to account for the various types of hypertrophy by either of the first two theories alone and he concludes that some enlargements originate in the periurethral glands, and others in the lobes of the prostate.

Now, in what direction does the prostate enlarge and why? This is simply a matter of studying the natural barriers to its growth. It cannot enlarge toward the perineum because it rests right on the strong triangular ligament. It cannot enlarge very far ventrally because it is so close to the symphysis pubis, but it can enlarge some laterally and a great deal posteriorly into the space normally occupied by the rectum. It can of course push into the urethra until the lobes meet, and it can also expand upward, either by lifting the floor of the bladder, or if the internal sphincter is weakened by the growth of a middle lobe, the lateral lobes may herniate into the bladder along with the middle lobe.

Figure 2 is a sketch illustrating simple lateral lobe enlargement of the prostate. Without an accompanying middle lobe, the lateral lobes do not herniate through the internal sphincter into the bladder, but the growing tumor pushes the bladder floor upward, compresses the prostatic

urethra and of course expands laterally and posteriorly where it meets the least resistance.

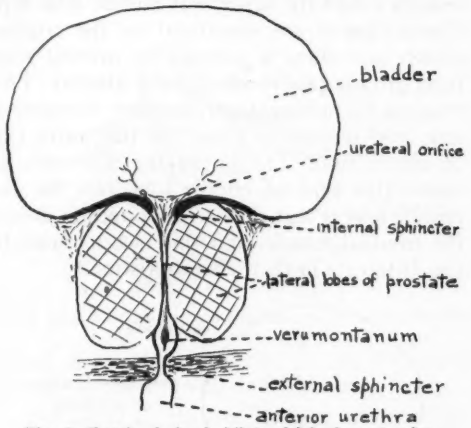

Fig. 2. Sketch of simple bilateral lobe hypertrophy.

From a study of this type of enlargement what is the logical approach for its relief? The tumor is not intravesical and therefore a suprapubic approach means entering the internal sphincter from above, shelling out the prostate and dragging it out through this sphincter with more or less injury, depending on the size of the mass. Because the perineal operation approaches the gland from its posterior aspect between the two sphincters, it certainly is the most logical approach if the tumor is to be removed. By this method the lobes have often been removed without breaking into the urethra. Now however, the transurethral method of removing that part of the lateral lobes that protrudes into the urethra has become so satisfactory, that it is being done by many of us instead of prostatectomy and seems very logical. As can be seen by studying the sketch in figure 2, the intruding lobes are easily approached by the urethral route and the intruding parts of the lateral lobes removed. There is, however, some technical difficulty in removing sufficient tissue in this type of case because of the intact internal sphincter. Perineal prostatectomy certainly seems to be the most logical approach in this type of case. Less than ten per cent of the cases are of this type.

Figure 3 is a sketch illustrating posterior commissural hypertrophy. It is located between the posterior parts of the lateral lobes and because Randall was unable to find it to have a separate capsule from that of the lateral lobes it is his firm belief that it is a part of the lateral lobes. Therefore he named it posterior commissural lobe, or a lobe in the commissure, or the connection between the lateral lobes. It is underneath the trigonal muscle which runs from the verumontanum through the sphincter and spreads out to the interureteric ridge. This muscle limits the growth of the posterior commissure and therefore this lobe is always a smooth, non-pedunculated mass, with a broad base, widening the opening of the internal sphincter and raising the floor of the sphincter, thus giving a characteristic cystoscopic picture. I have often called this the deep middle lobe in contrast to the superficial subcervical type of hypertrophy illustrated in figure 5, which is entirely superficial to the trigonal muscle. The action of the trigonal muscle is to pull posteriorly the sphincter floor, and this opens the sphincter in the act of urination. This action is of course made more and more difficult by the enlargement of the deep middle lobe, so that finally the bladder is unable to empty itself, the residual urine increases and something has to be done to relieve the obstruction.

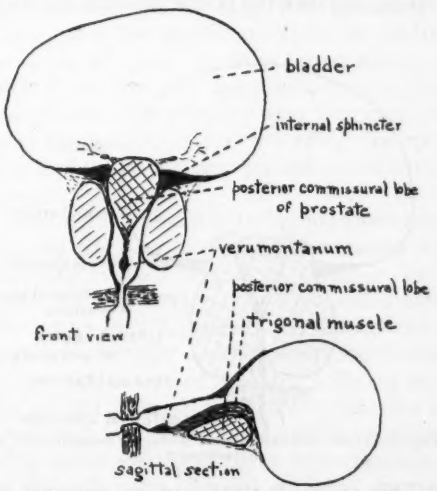

Fig. 3. Sketch of posterior commissural lobe hypertrophy.

It is in this type of a case, that sometimes the material removed by a punch operation or the newer electrical resection has been found to be only muscle and the operator has been accused of not getting what he went after, namely prostatic tissue. It simply means that the underlying middle lobe, which may be quite small, has caused so much hypertrophy to the trigonal muscle that the obstructing tissue is chiefly muscle.

Protruding into the bladder as it does, it is nicely approached suprapubically, but prostatectomy is an unnecessary procedure for this

type of case. Because the lateral lobes are not involved, and the mass protrudes into the bladder beyond them, the perineal route is not at all adaptable to this type and is also too formidable a procedure. Here transurethral resection is excellent. The raised floor can be trimmed down as desired, the obstruction removed, and the patient cured with a minimum amount of discomfort and disability.

Figure 4 illustrates a combination of the preceding two types. It is this group that gives one the collar type of prostate which from the bladder looks similar to a uterine cervix. With the middle lobe acting as a wedge in the internal sphincter it encourages the herniation of the lateral lobes through the sphincter also. If it is true that this middle lobe is a part of the lateral lobes then this process is easy to understand. The lateral lobes do not herniate into the bladder unless they are in combination with a middle lobe enlargement. It seems that the first wedge has to be thrust in under the trigonal muscle, and then the lateral growths can follow suit.

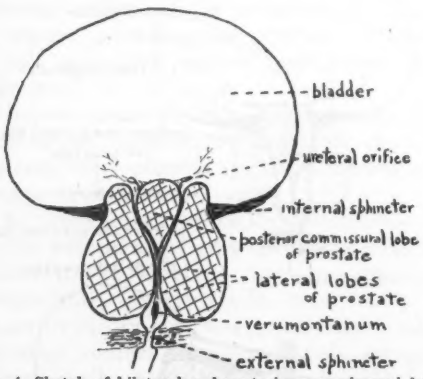

Fig. 4. Sketch of bilateral and posterior commissural lobe hypertrophy.

This type of gland can be removed very nicely by the suprapubic operation and if it is very large and intrudes very far into the bladder, that is the treatment of choice. The perineal operation is all right here if the enlargement is not too far intravesical. If the intravesical portion is not exceptionally large, the transurethral method is also very satisfactory. With the internal sphincter dilated, a funnel-shaped opening can be made from the sphincter to the verumontanum without coming in close contact with anything except prostatic tissue. If the growth is extremely large and protrudes far into the bladder, the suprapubic operation is the one of choice.

Figure 5 is a sketch illustrating the subcervical type of hypertrophy, or what I have previously called the superficial middle lobe type. These tumors are superficial to the trigonal muscle and there is nothing to prevent them from growing right out into the bladder. They tend to be pedunculated, are not excessive in size, and frequently cause the ball-valve type of obstruction. The important difference between this type of middle lobe and the deep middle lobe is that they are on opposite sides of the trigonal muscle, and this fact accounts for the difference in their characteristics.

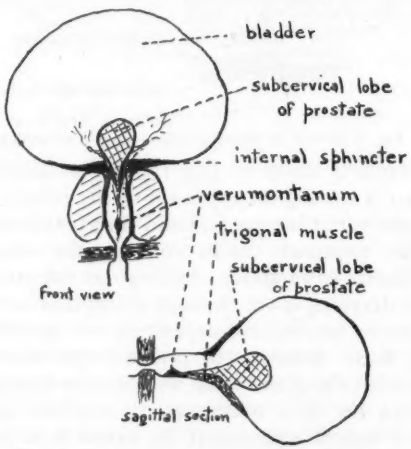

Fig. 5. Sketch of subcervical lobe hypertrophy.

What is the logical approach to these tumors? As they are all intravesical, the perineal route is out of the question. As they are usually not excessive in size, the suprapubic operation is an unnecessarily big procedure. These cases are very logically treated by the transurethral method.

Figure 6 is a sketch illustrating the combination of the bilateral and subcervical or superficial middle lobes. In this combination the lateral lobes very frequently herniate into the bladder too. This is the typical three lobe prostate as seen after enucleation.

Because of the intravesical lobe it does not seem as logically approached from the perineum. Because the lateral lobes almost always herniate into the bladder to some extent at least, enucleation by the suprapubic method would seem to be much more logical and this again is the route or choice if the lobes are markedly intravesical or are enormously enlarged. If, however, the lobes are not too enormous and the instrument can be introduced at all, the transurethral ap-

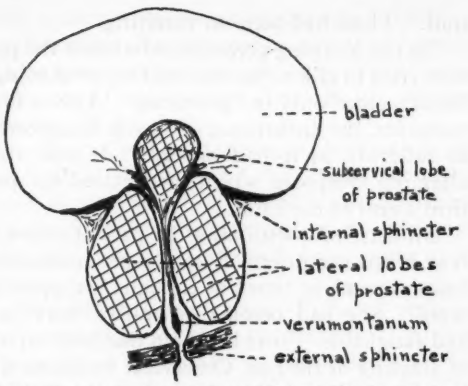

Fig. 6. Sketch of subcervical and bilateral lobe hypertrophy.

proach is so satisfactory that by far the largest per cent of these can be done that way.

The above are the five main types of enlargement and probably more than 90 per cent of all cases of prostatic hypertrophy will roughly fit into one of these classes. There are a few other rare types such as an occasional case of anterior lobe enlargement, or an anterior commissural type, or a combination of both the deep and superficial middle lobes. Also there are a few cases of a subtrigonal type which is just the same as the subcervical or superficial middle lobe except that it originates farther out on the trigone of the bladder.

As I stated at the beginning, it was not my purpose to advocate any certain type of treatment. It is very natural however that one would put more emphasis on a method that is so very satisfactory in such a large per cent of cases as is the transurethral method. It was my purpose to describe the chief types of benign prostatic obstruction and point out what seems to be a logical approach for treatment of each, from the standpoint of the gross pathology.

C. Malone Stroud, St. Louis (Journal A.M.A., Nov. 10, 1934), found dilaudid to be an efficient analgesic in the control of constant pain. It is more helpful in cancer than any other opiate that he has used. In order to obtain continuous relief of constant pain, the method of administration is important. The doses should be administered with sufficient frequency to permit continuous effect. Although in the type of case that he observed the detection of habituation was difficult, he believes that dilaudid is less habit forming than morphine. There was less deterioration of character and better morale in patients who were treated with dilaudid than in patients treated with other drugs. The untoward side effects were less troublesome than those of other opiates.

CHRONIC ENDOGENOUS HYPOGLYCEMIA WITH NEUROPSYCHIATRIC SYNDROME*

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While diabetes mellitus is one of the oldest of definite clinical entities, the opposite disturbance of carbohydrate metabolism, spontaneous hypoglycemia, is a relatively new concept in medical consciousness. It is probable that the epoch-making introduction of insulin into medical practice and the numerous observations of untoward reactions to overdosage, i.e., hypoglycemic shock, expedited the recognition of clinical syndromes due to low blood sugar of endogenous origin. Altho hypoglycemia had been studied previously in the biochemical laboratory, special credit is due Seale Harris[1] who in 1924 described clinical symptoms accompanied by low blood sugar readings which he attributed to an excess or disorder of insulin secretion. Conclusive proof of the occurrence of "hyperinsulinism" in man was furnished by Wilder et al of the Mayo Clinic[2] in 1927 in the study of a case of adenocarcinoma of the islets of the pancreas characterized by a severe hypoglycemic symptomatology. The neoplastic tissue in this individual, including the metastatic nodules in the liver, yielded potent insulin extracts.

During the past ten years spontaneous hypoglycemia has been recognized and treated with increasing frequency, and an extensive literature of case reports and reviews has accumulated. The reader may be referred to the reviews of Sippe and Bostock[3] and Gammon and Tenery[4] for a general survey of the subject. As the available clinical material increases, it becomes apparent that over-secretion of insulin, while certainly an important cause of hypoglycemia, is not the sole cause. Several etiologic classifications have been presented, differing in minor details.

Of these etiologic types of hypoglycemia, an important if not common form is that associated with gross hepatic disease. The severity of these cases, which probably depend on disturbance of the glycogen-storing function of the liver, is enhanced by the fact that numerous other essential functions of the liver may be progressively attacked by the same pathologic process which causes the hypoglycemia, and death may ensue despite apparent control of the glucose level of the blood.

*From the Menninger Clinic, Topeka, Kansas.

The following case is presented as an unusual example of chronic hypoglycemic symptomatology with acute exacerbations. Both the chronic and episodic manifestations were entirely in the neuropsychiatric sphere, a tendency which has received much recent comment in the literature and which necessitates the consideration of hypoglycemia in the differential diagnosis of all obscure neurologic or psychiatric disturbances. This case, while not certainly of hepatic origin may be classed as such tentatively, since a gross and histologic morbid change in the liver remains as the only conclusive clinical, laboratory, or operative finding to date.

CASE HISTORY

Mrs. C. W., a Kansan housewife, 50 years of age, reported to the Menninger Clinic on June 24, 1933, complaining of headaches of four years' duration and dizziness of recent onset. Her family history was essentially negative. In childhood she had a severe attack of typhoid fever. She had been married 26 years; her husband was healthy. There had been two stillbirths (unexplained). One son (the third pregnancy) was 17, healthy in all respects. In 1926, the patient had been troubled by excessive uterine bleeding. For this condition her right ovary, uterus, and appendix had been removed, and a diagnosis of "tumor" verified. The patient had been amenorrheic since that time and had suffered from occasional "hot flashes", persisting even to the present. For these symptoms she had received abundant hormone therapy without benefit. She also complained up to the present of occasional pain, tenderness, and swelling in her left lower quadrant, "in her ovary".

Four years before admission the patient began to suffer from a vertex and occipital headache, occasionally including the posterior surface of her neck, most severe in the morning, disappearing toward evening. The headache would be relieved by lying down, only to reappear with the erect posture. It increased in duration and severity so that at the time of admission, the patient was suffering from an almost constant severe pain in the distribution mentioned. During the spring preceding admittance the patient began to suffer from a vague dizziness, a "wobbly" feeling, associated with unclearness of vision. There was also, at times, a transitory confusion and inadequacy of mind. As a result of these symptoms the patient found it necessary to carry her head stiffly erect, "lest something spill." There had been no vomiting.

On the morning preceding admission the patient tried to talk to her husband on awakening, but succeeded only in "jabbering". After a few moments, the disturbance of speech disappeared as suddenly as it had appeared. It was this alarming symptom which precipitated the patient's visit to the Clinic.

On detailed questioning the patient added a few minor symptoms. Recently her hands had become numb at times, as though "wrapped in wool". She had become generally "nervous" and fatiguable. There had been one brief attack of tingling of the lips. On several occasions she had felt as though her eyes were going to cross or as though they had crossed, but no one had ever observed a strabismus. Diplopia had not occurred.

POSITIVE EXAMINATION DATA

Physical Examination: A short blonde middle-aged woman, well developed, well nourished. Tongue unusually smooth. Mild chronic postnasal catarrh. Tenderness over the cervical spine. Lower midline laparotomy scar. T P R normal. Blood pressure 135/80. No other important findings.

Neurological Examination: Slight bitemporal visual field constriction to finger test. Symmetrical tendon hyperreflexia without clonus or pathologic reflexes, not including the ankle-jerks. Abdominal reflexes slightly less active on the left. Slight bilateral uncertainty in finger-to-nose test with closed eyes. Slight bilateral diminution of all superficial sensation below D 12. Right nasolabial fold a trifle smoother than the left. Bilateral slight diminution of air conduction hearing, more marked on the right. Considerable swaying in the Romberg position. Bilateral ruddiness of the optic disks with slight fullness and tortuosity of the veins. Visual acuity 20/70 bilaterally (marked asthenopia). No other important findings.

Laboratory Examinations: Urine negative, specific gravity 1.027. Hemoglobin 90 per cent; red blood count 4,800,000, white blood count 7,250, polymorphonuclear leukocytes 64 per cent, small lymphocytes 32 per cent, large lymphocytes 2 per cent, basophiles 1 per cent, transitionals 1 per cent. Blood Wassermann and Kahn negative. Lumbar puncture: Fluid clear. Initial pressure 162 mm. water; rose 150 mm. and fell promptly with light jugular pressure and release. Cell count 6. Total proteins 66. Wassermann and colloidal gold curve negative. (For blood chemistry and all subsequent spe-

cial examinations see accompanying table.)

Perimetry: For varying diameters and colors, there was a tendency to slight bitemporal constriction. This was not constant on repeated testing.

x-Ray: Cervical spine negative. Teeth negative. Skull: Lateral and A-P views showed a very slight absorption of the posterior clinoid processes, of doubtful significance. This appearance was not observed on a subsequent plate.

Psychiatric Examination: Revealed nothing of importance except an impatient, highly opinionated temperament, particularly refractory to painstaking medical investigation. The subjective confusion to which the patient was susceptible at times was not evident on the day of examination.

Tentative Diagnosis: Despite the paucity of conclusive objective findings, it was felt, on the basis of the history, that the patient was probably suffering from a progressive intracranial (posterior fossa) lesion, perhaps in the fourth ventricle region. This was thought to be an adhesive inflammatory process or a minute pedunculated intraventricular tumor, in either case accompanied by slight or intermittent hydrocephalus. An expanding lesion in the chiasmal (i.e., pituitary) zone was also considered. The patient was asked to enter the hospital for a short period of observation.

COURSE IN HOSPITAL

The patient entered the hospital on June 26, 1933. She was querulous and skeptical about the advisability of detailed study throughout the observation period. The morning after admission she complained of partial failure of vision, but this cleared within a few hours. The nurses observed occasional twitching of the left orbicularis oculi. The temperature was usually normal, or a degree below normal. June 27 lumbar puncture was performed with the patient in perfectly horizontal position (maintained for 24 hours thereafter) and the utmost precaution against rapid decompression. The results have been recorded. The patient was deprived of her evening meal the day of the puncture and given a very light breakfast the following morning. Even before her breakfast she complained vaguely of feeling "queer".

After breakfast the patient was visited by her son, who sought the physician in alarm, stating that his mother was "acting queerly", in a manner never before observed by him. As soon as she was approached, the patient declared vehemently that she was going crazy, that she *was* crazy, that she didn't know what was the matter with her. There was something the matter with her head; otherwise she was all right. She burst into tears, rolled from side to side, kicked her legs wildly into the air in a vain attempt at backward somersaults, exclaiming loudly and repeatedly that she was going crazy. It was observed immediately that the patient's skin was generally cold and clammy, a phenomenon strikingly out of harmony with her excessive activity. Extensive neurologic testing was impossible at the time. However, it was noteworthy that the patient executed the finger-to-nose, finger-to-finger, and other tests referable to the upper extremities with irregularities no greater than the slight disturbances originally observed. She was, however, utterly unable to execute the heel-knee-shin tests; instead she flung both legs wildly and hopelessly about and allowed them to bounce back and forth on contact in a fashion resembling that of extreme cerebellar ataxia. Both knee-jerks at this time were extremely hyperactive, with moderate patellar clonus; the ankle-jerks were increased over their previous state, but still relatively diminished. The left plantar reflex was entirely normal; the right showed an abortive tendency toward extension and then executed normal flexion. The nasal border of the right optic disk was perhaps slightly less distinct than before. The right corneal reflex was slightly less active than the left. The right nasolabial fold was definitely smoother than the left. The patient was able to name small objects and to read simple printed matter. In twenty or thirty minutes the patient's behavior became normal. The severe patellar hyperreflexia persisted, with slight awkwardness in the right heel-knee-shin test. About two hours later, the patient was perfectly comfortable, free of all symptoms, but she exhibited on examination a definite unquestionable right Babinski sign. A few hours later, this too disappeared, never to reappear under our observation, and the patient soon returned completely to the neurologic status observed on admission.

Following this strange hysteriform episode, occurring in relation to diminished ingestion of food, despite the patient's genuine protestations of poor appetite, the provisional diagnosis of spontaneous hypoglycemia (origin unknown) was established. This was verified by subsequent studies of blood chemistry, in which the response to glucose ingestion (Dysinsulinism-

Harris) remained a puzzling feature, certainly insofar as sheer over-secretion of insulin might be considered the cause of the patient's hypoglycemia. This phenomenon, however, has been observed repeatedly in other cases, with various explanations.

At this point, the nature and gravity of the patient's illness were explained to her, with the necessity for careful study and prolonged surveillance. The patient's attitude was singularly perverse and she demanded her release on June 29, 1934, only to be readmitted for a brief stay a few days later, when her symptoms became more severe. Thereafter, the patient was seen at irregular intervals, depending on her subjective need for treatment. The results of the studies which she permitted as a hospital patient and as an outpatient are recorded in the accompanying chart.

SUBSEQUENT COURSE

It is unnecessary to detail each of the patient's visits. Before her discharge she was placed on a schedule of small two-hourly feedings from 8 a.m. to 10 p.m., extra nourishment to be taken during the night if symptoms appeared. In addition, she was to eat ordinary meals, not excessively nutritious. The two-hourly feedings consisted of nutritious rations, not high in freely soluble immediately available glucose. (It was later observed that the patient's most severe symptoms sometimes followed closely a large "rich" meal.) Under this regimen, the patient exhibited considerable improvement; no severe or acute symptoms occurred. On July 18 the patient felt well, but complained of the persistence of occasional slight occipital headache and dizziness. It was decided to try the effect of a relatively high fat, low carbohydrate diet (as recommended by Seale Harris), strictly calculated, with fixed interval feedings. However, the patient reported exacerbation of symptoms under this regimen and she found it difficult to adhere to the diet. On July 27 the original dietary plan was resumed, to be followed by a persistent and marked general improvement, paralleled by the blood sugar determinations.

On August 24, 1933, the patient decided that she felt well enough to discontinue visits to the Clinic. An occasional letter and indirect reports indicated that she continued to do her housework and to feel fairly well during the fall, winter, and spring of 1933-1934. A letter of July 23, 1934, stated the persistence of some of her original symptoms, and the appearance of transitory dull epigastric pain. It also stated that a recent blood sugar determination had been 41 mg. per cent. However, the patient did not come again for examination until August 14, 1934. At this time she was brought to the hospital in an ambulance as an acute emergency.

The patient's husband stated that she had been feeling below par for several weeks and there had often been excessive restlessness in the early morning, relieved by taking orange juice. As the hot weather became more severe, the patient's appetite diminished until she could not force her intake to the required level. Four or five days before admission, the patient had had an attack of "mumbling, numbness, and deadness", from which she recovered with general massage. On the morning of admission at 6:15 a.m. the patient did not respond to attempts to rouse her. She muttered only irrelevant words and seemed incapable of drinking fluid effectively. After a short time, the husband and family physician gave up their attempts at resuscitation, and decided on hospitalization. On her way to the hospital the patient improved sufficiently to drink a bottle of "pop".

On her arrival, the patient complained of a severe frontal headache. Her pulse was small, rate 88. Blood pressure was 130/70. Temperature was 101° (rectal). Abdomen and lungs were normal. There was a blowing systolic murmur at the cardiac apex. Tendon reflexes were symmetrically exaggerated, without Babinski or clonus. There were no neurologic findings that differed essentially from those originally recorded. The patient could count fingers across the room, but complained that everything seemed hazy to her. As soon as her blood was taken for chemistry she was given 50 cc. of 50 per cent glucose intravenously and thereafter sips of orange juice as often as she would take them. An ice cap was applied to her head, and she was watched very closely. As she improved, she professed a total amnesia for the events of the morning up to a hazy remembrance of drinking the "pop".

The day after admission, the patient became afebrile and ambulatory. Complete reexamination, including *x*-ray of the sella turcica and perimetry revealed no new and significant findings. It was noteworthy that the patient had gained a few pounds despite her recent illness and anorexia. She demanded her release on the second day following admission, but consented to think about the necessity for surgical abdominal exploration.

On August 19th or 20th the patient went to the Mayo Clinic, Rochester, Minn. We are greatly indebted to Drs. Russell Wilder and Waltman Walters for information regarding her course under their observation. A diagnosis of spontaneous hypoglycemia was made, and exploratory laparotomy was carried out with the expectation of discovering and removing a pancreatic adenoma. A circumscribed nodule was found at the junction of the head and body of the pancreas. However, on excision and microscopic examination this proved to be a lymph node. A double strand of thick silk was carried around the pancreas and ligated anteriorly to the division of the coeliac axis and splenic artery. One Penrose drain was inserted in case there should be a tendency to pancreatic necrosis.

Exploration of the liver revealed a marked gross fibrosis, with a stellate fibrous appearance of its peritoneal covering. Immediate microscopic examination indicated a chronic peribiliary cirrhosis. Further study revealed a "definite hepatitis confined to the portion of the liver adjacent to the capsule but diminishing in intensity centrally." While the opinion at the Mayo Clinic was at first definitely in favor of the hepatic origin of the patient's hypoglycemia, some doubt was thrown on this idea by the atypical character of the liver findings. The patient was offered reoperation with the purpose of resecting a portion of the pancreas, but she elected to return to her home on September 26, 1934. The patient had some temporary benefit following her operation, but her blood sugar fell to subnormal levels as soon as she became active, with a recurrence of symptoms.

On October 16, 1934, the patient returned to the Menninger Clinic, looking somewhat pale and drawn. She had lost a few pounds of weight. She complained that she felt no better than before her operation, that she was, indeed, considerably worse since her return to her home. She stated that she had a practically constant headache, with giddiness and impairment of vision. She also complained of sour gastric eructations and of a profuse malodorous vaginal discharge, which had begun just before her return. On general physical and neurological examinations, no new findings were apparent except a well healed upper mid-line laparotomy scar.

The patient was given symptomatic therapy for her gastric and pelvic complaints, and she responded to it promptly. She was placed on a two-hourly schedule of small high carbohydrate meals, with the advice that she avoid excessive eating at her regular meals, i.e., that she maintain as steady and slow a glucose assimilation as possible. In addition to this regimen, the patient was given liver extract at first intramuscularly, later by mouth, in the hope that it would at least stimulate her appetite, and possibly furnish some essential principle lacking in her body economy because of the liver lesions found at operation. To date, the patient has exhibited steady improvement, and a recent fasting blood sugar reading was 67 mg. per cent. It is, however, too early to evaluate the effect of the liver extract.

DISCUSSION

The special features and the implications of this unusual case may be discussed under the following headings: (1) the neuropsychiatric syndrome, (2) the etiology of the hypoglycemia, (3) the diagnosis, (4) the treatment.

1. The Neuropsychiatric Syndrome: In reviewing the history of this case, one is struck by the number and variety of symptoms referable to the nervous system. In a single patient there were chronic headache and giddiness, evanescent recurrent confusion, visual disturbances, paraesthesias, and acute episodes of stupor, aphasia, and hysteriform motor activity. It has been noted in the literature[5] that all of these cases present neurologic or psychiatric symptoms, and the variety of possible symptoms included in thorough compilations excludes reproduction in this brief report[5, 6]. It should be noted, however, that these symptoms range from remarkable simulations of hysteria, anxiety seizures, and acute psychogenic psychoses to equally remarkable simulations of acute intoxications, encephalitides, brain tumors, migraine, organic vertigo, and genuine epilepsy. It is indeed a fact of increasingly wide acceptance that an appreciable although uncertain percentage of periodic hitherto unexplained convulsive seizures are dependent on hypoglycemia. Just as hypoglycemic phenomena may be totally lacking in objective physical signs of disease, so may they with almost equal facility present organic features, such as a Babinski sign or a transitory hemiplegia, ordinarily associated with gross anatomic disease of the brain or spinal cord. In the case presented, organic and hysteriform symptoms were mixed in an especially confusing fashion. The diagnosis of conversion hysteria was indeed considered early in the examination to be dismissed promptly. In

general, it may be said that almost any function or portion of the voluntary or autonomic nervous system may be disturbed by lowered blood sugar and that there is no way to predict or explain the symptomatology of a given individual except in terms of the familiar generalizations applied to the localizations of all systemic disease processes. Because of the especial affinity of this metabolic disorder for the nervous system neurologists and psychiatrists must be especially familiar with it. All practitioners, however, are confronted with the problems evoked by it, especially in their acute or incipient forms. Furthermore, the scope of the symptomatology has been extended to include (among others) cardiac and respiratory symptoms[7], paroxysmal disorders of childhood,[8, 9, 10] especially acetonuria and vomiting[11, 12] and a large group of vague illnesses characterized by weakness and neurasthenoid symptoms[3, 12]. Certain of the symptoms of pregnancy and lactation have also been approached from this point of view[13].

2. The Etiology of the Hypoglycemia: To understand the variety of possible causes of hypoglycemia, one must recall the simple outlines of carbohydrate metabolism, in any phase of which a disturbance may arise. Sufficient carbohydrate (relative to the energy necessities of the organism) must be ingested, properly digested, and assimilated from the gastro-intestinal tract into the blood stream. There a fairly constant limit of fluctuation is maintained under ordinary conditions. The combustion or storage of glucose requires an adequate amount of insulin, secreted by the islands of Langerhans in the pancreas. The storage of carbohydrate is accomplished by the conversion of glucose to glycogen in the liver (glycogenesis) whither it is brought by the portal system. Some glycogen is also stored in muscle tissue. Demands for glucose, not met by immediate assimilation of fresh carbohydrate, are met by the hydrolysis of glycogen (glycogenolysis), with the liberation of glucose into the blood stream. Glucose which is superfluous either to the needs of combustion, blood sugar level, or glycogenesis, may be converted into fat. In maintaining the blood sugar level, the renal threshold against glycosuria may also be important. Into this relatively simple scheme must also be introduced the factors of neural and endocrine influence. Overactivity of the parasympathetic nervous system (manifested by vagotonia) tends to depress the blood sugar. Overactivity of the sympathetic nervous system tends to elevate the blood sugar, and this phenomenon has received therapeutic application in section of the splanchnic nerves for diabetes. It is also important that endocrine derivatives such as pituitrin, thyroxine, and adrenalin are antagonistic to insulin in that they tend to elevate the blood sugar. Clinical cases have been described which lend importance to the etiologic possibilities of a disturbance in any of these numerous phases of glucose biochemistry, ranging from exhaustion due to violent effort or lactation to pituitary syndromes relieved by appropriate endocrine therapy.

In general, however, it may be said that the most important causes of clinically severe hypoglycemia are: (1) Hyperinsulinism, and (2) Disturbance of the glycogenetic or glycogenolytic functions of the liver. The former may be due to (a) Adenoma or adenocarcinoma of the pancreatic islets, (b) Hyperplasia or hypertrophy of the islets, (c) Hyperfunction of the islets in a structurally normal or apparently normal pancreas. The occurrence of hyperinsulinism is securely established from the laboratory and clinical points of view. The idea of occurrence of hepatic hypoglycemia, while definitely established in animal experimentation[14] and altogether "reasonable", has gained ground more slowly. Many of the cases described have been incidental phenomena in the course of severe toxic, infectious, or neoplastic diseases of the liver.[9, 15, 16, 17, 18, 19] However, there have been some cases of reasonable certain hepatic origin, in which the hepatic disorder apparently spared all of the major functions of the liver except that of carbohydrate storage and mobilization.[10, 11, 18, 19, 20] In a few cases, marked fatty replacement of the liver has been found.[11, 20]

In children, disease of the liver is apparently the most common cause of hypoglycemia, although pancreatic adenoma has occurred.[11] Cammidge[12] is of the opinion that the majority of all cases of hypoglycemia are of hepatic origin. In closing this brief and incomplete outline it should be mentioned that some authors have gone beyond the anatomic concept in the pursuit of etiology, and the factors of chronic infection,[12] heredity,[12, 21] dietary habits,[22] and even climate[3] have been considered among others. S. Harris[1, 21, 22] has always been interested in the importance of hypoglycemia as a precursor of diabetes mellitus, a superficially paradoxical, but fundamentally rational point of view.

In the case here presented, the ultimate etiology is not settled. The results of abdominal exploration are of course definitely although not conclusively against the concept of pancreatic hypoglycemia. The possibility of an intracranial lesion in the third or fourth ventricle or hypothalamic regions is not definitely excluded, but this, if present, would probably be an inflammatory or degenerative rather than neoplastic lesion, in view of the failure of progression of neurologic signs. There is no evidence of hypo-adrenalism. The possibilities of hypopituitarism, hypothyroidism, hypogonadism, while faintly suggested by some of the findings and history can not at present be given an important place in differential diagnosis. The finding of a definite morbid change in the liver at operation remains the most tangible feature of the case to date.

3. The Diagnosis: It is not necessary to describe in this paper the usual symptoms of exogenous insulin shock, a syndrome now familiar to all physicians. In some of the classical instances of spontaneous hypoglycemia, the symptoms have been equally clear cut. However, this is not always the case, and the majority of cases cover a range of bizarre manifestations (v.s.) which does not permit the establishment of exclusive pathognomonic signs and symptoms. The paroxysmal nature of the symptoms, the relationship to diminished ingestion of food, and the presence of one or more of the features of "insulin shock" characterize many of the cases. The episodic symptoms may occur against the background of a chronic slowly developing symptomatology (as in the case described) or as startling occasional interruptions of "perfect health."

The positive diagnosis is made by determination of the fasting blood sugar or the response to glucose ingestion. However, as in all medical diagnosis, the physician must consider not only the presence of a possible etiologic factor but must prove to his satisfaction the relationship of the possible causal factor to the patient's symptoms. A startingly low blood sugar may exist in an individual who feels perfectly well. On the other hand, certain individuals may experience the symptoms of hypoglycemia with blood sugars well within "normal" average figures.[3, 4, 6] Diabetics sometime experience hypoglycemic symptoms on sudden reduction to figures which are still above the normal average. Thus the sensitiveness of the individual patient to his blood sugar level is highly important, and the low or relatively low blood sugar reading with the clinical symptoms (especially in their relation to the abstinence from or ingestion of food) remain an indispensable diagnostic combination.

In the case presented above, the chance observation of a bizarre reaction to diminished food intake facilitated a diagnosis which might otherwise have been delayed for some time. The diagnosis was borne out by blood sugar determinations and by the patient's excellent response to a high carbohydrate intake. This patient did not exhibit the craving for food which distinguishes many patients, especially in acute episodes, and which is very helpful in diagnosis. Indeed, this patient has been distinguished by a persistent paradoxical anorexia.

4. The Treatment: When a disease entity is not yet completely understood, it is difficult to speak dogmatically of a standard therapeutic approach. The attitudes of students of spontaneous hypoglycemia may be in general divided into two major points of view: (a) The surgical point of view, which postulates that an operable adenoma of the pancreas may be present in any case of hypoglycemia, and that prompt abdominal exploration is indicated, with the purpose of removing the adenoma, or if it be absent, of more definitely excluding it from the diagnosis.[5] (b) The conservative medical point of view which postulates that the majority of hypoglycemias are of internal "medical" nature, that dietary treatment should be tried first, and that surgery should be employed only if medical treatment fails or if there is strong reason to suspect the presence of a pancreatic adenoma.[1, 3, 12, 21, 22] The surgical point of view has now been extended to include the plan of partial pancreatectomy in those cases in which gross lesions of the pancreas are not found.[23] This procedure would theoretically diminish the insulin-bearing quantity of pancreatic tissue in much the same way that subtotal thyroidectomy presumably diminishes the thyroxine output of the overactive thyroid gland. The results of removal of pancreatic adenomas have been good, as may be expected. The partial pancreatectomy has not yielded striking results to date, although it has been argued that a very large part of the pancreas must be removed to test the procedure adequately.[23]

These points of view must represent to some extent the differing clinical experiences of their respective proponents. The internist who may

see a large number of relatively mild chronic cases that respond very well to dietary treatment is not inclined to urge surgery. The surgeon or other specialist who comes into contact most often with severe rapidly progressive cases is impressed with the necessity for prompt surgical exploration. Many cases have been relieved, even cured, (from the clinical point of view) by dietary or other medical treatment. However, it must be conceded that the pancreatic adenomas or adenocarcinomas which cause hyperinsulinism usually cannot be palpated through the abdominal wall or visualized radiologically. It may be said that the "tumor" (i.e. true surgical) cases are in general more rapidly progressive, more severe, more erratic in their course, and more promptly fatal.[4] These criteria may be of some help in making a decision regarding the wisdom of surgical intervention in a given case.

The case here presented has always exhibited considerable improvement with carefully planned and supervised dietotherapy. Two other patients previously observed by the author responded favorably to the same treatment. However, their ultimate course is not known to him. In view of the steady multiplication of etiologic possibilities in this condition, it seems fair to give every case the benefit of a trial with medical therapy, especially if it be mild and chronic, and to resort to surgery if the clinical response is poor, or if the clinical course in any way suggests neoplasm. With the medical therapy, it is of course necessary to employ every available resource of modern medicine in an effort to fix the anatomic or dynamic cause of the disorder in the individual case and then to attack the etiologic factor radically.

The medical treatment of hypoglycemia is simple. It consists of extra feedings of carbohydrate so timed as to anticipate the patient's symptoms, or, in chronic cases, distributed uniformly through the day, in quantities prescribed according to individual needs. Whether these feedings consist of simple foods, orange juice, pure cane sugar or glucose, barley sugar, or standard pharmaceutical preparations matters little, except as it may involve palatability or individual digestive peculiarities. Some individuals do not react well to massive doses of glucose. The patient here described has at times suffered severe reactions following heavy meals, and she has usually felt best when taking small feedings at two-hour intervals throughout the day. S. Harris[22] a pioneer student of this disease, is impressed with the relationship of this problem to that of diabetes mellitus. He has suggested that a high carbohydrate diet may be a provocative factor in spontaneous hypoglycemia (through over-stimulation of insulin production) and later of diabetes mellitus (through insulin exhaustion) in the same individual. On the basis of this theory, Harris treats his patients as potential diabetics, giving them a low carbohydrate diet, with favorable therapeutic results. That our patient reacted adversely to this approach and favorably to the opposite approach may be another point against pancreatic disorder (hyperinsulinism) as the cause of her trouble.

Adjuvant treatments are certainly justified where physical or anamnestic findings indicate their use. Endocrine substances such as pituitary, thyroid, and adrenal have been employed with favorable results in some cases. However, great caution must be observed in the exhibition of potent glandular extracts, since their action can never be predicted with certainty in a given case. In this case, the patient has to date shown a favorable response to liver extract, but neither the modus operandi nor the eventual outcome can as yet be stated.

SUMMARY AND CONCLUSION

A case of chronic endogenous hypoglycemia with a neuropsychiatric syndrome has been described. The hypoglycemia is thought to be probably of hepatic origin. The important features and implications of the case have been briefly discussed.

The case represents a disease entity, only recently appreciated by medical men, which is probably far more common than the frequency of diagnosis would indicate. The diagnosis will probably be made with increasing frequency as the concept becomes more widely accepted. It should be borne in mind that certain clinical features of the disease and blood sugar determinations are both essential to proper diagnosis. Although the study of the urine may give invaluable information about hyperglycemia or renal function, the urine in hypoglycemia is usually lacking in distinguishing characteristics. A clue may be found in the small proportion of cases with sugar-free acetonuria, in the absence of other causes. This, however, is not pathognomonic, and direct blood chemistry is always indispensable to complete diagnosis.

SPECIAL LABORATORY DATA

Date	Fasting Blood Sugar	Plus 100 gm. glucose p. o.	1 hr.	2 hr.	3 hr.	Other Tests
6-27-33	40 mg.%					Blood NPN 46 mg.%
7-4-33	50.8 mg.%		260	300	240	Morning urine normal
7-6-33	48 mg.%		250	214	188	
7-7-33						BMR minus 10%
						Urine 1 hr. post-prandial negative.
7-8-33						Urine concentration test, maximum 1.020.
						Phenoltetrachlor-phthalein liver function test
						15 mins. 11%
						1 hour 3.5%
7-14-33						Pancreatic ferments in feces: Amylase moderately decreased, 15,000 units. Trypsin not demonstrated.
7-19-33	50 mg.					
	15 mins. after Epinephrin.					
	M X 50 mg.					
7-24-33	1 hr after, 50 mgm.					Urine neg. for sugar acetone and diacetic acid.
7-27-33	44 mgm.%					
8-10-33	84 mg.%					NPN 38.9 mgm.%
8-24-33	77 mg.%					
8-14-34	115 mgm.%	(Bottle of "pop" consumed en route to hospital.)				Routine urine examination negative.
8-15-34	52 mgm.%		193	200	117	4th hour—72 mg.%
	Urine sugar neg.		Urine sugar neg.	Urine sugar neg.	Urine sugar neg.	Urine sugar negative.
Mayo Clinic August-September before operation.	46 mg.%	½ hr. after 1 gm. per kilo of wgt. 133 mg.		149	67	1. Tetrabromphthalein test negative
						2. Serum bilirubin normal.
						3. Van den Bergh reaction indirect
	85 mg.%					4. Total lipoids "practically normal."
	plus ½ cc. adrenalin					
	45 mins. 112					
	90 mins. 108					
Sept. 20 after operation.	45 mg.% in a.m.					
	45 mg.% in evening					

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Although hemeralopia is a frequent symptom in the ordinary, mild, chronic, adult type of xerophthalmia, it was not present at any time in the case that J. A. Thorson, Dubuque, Iowa (Journal A.M.A., Nov. 10, 1934), reports. The disease ran a protracted course for six years, with a seasonal variation in severity. During the fall and winter months the patient consumed no vitamin A, while in the spring a few green vegetables and eggs became timely sightsavers. The effect of abundant sunlight, as proved by the ingenious experiments of Powers, Park and Simmons, must also have been an important seasonal therapeutic factor.

TRAUMATIC RUPTURED SPLEEN—SPLENECTOMY—CURE

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There is a wide variation in opinion relative to the occurrence of injured spleens following abdominal injury. According to Mazel[1] in a recent review of the literature he finds that in about 30 per cent of all abdominal injuries the spleen is involved, which seems rather high, as most personal observations are limited to few cases, my own being two, the first of which died on the operating table and the second survived operation which this report includes.

The causes of ruptured spleen can usually be divided into two definite classes, traumatic and spontaneous. Traumatic rupture is due to a direct or indirect blow to the upper abdomen as a fall, kick by a horse, or by advanced means of transportation, as automobile accidents or any accident which results in a blow to the upper abdomen with or without external injury. As stated by Deaver[2], "If the spleen is normal, a very great degree of trauma is necessary to rupture it."

Spontaneous rupture is associated with a pathological spleen as in Banti's disease, malaria, etc., in which the spleen is markedly increased in size and extremely friable.

Traumatic rupture may be divided into two classes relative to hemorrhage, as immediate and delayed, immediate being that type of case in which the symptoms of shock are quite obvious with sudden collapse and probable death. Also in this class we may have cases of less severe hemorrhage in which we get signs of shock in a milder degree in which immediate surgical intervention will give excellent results.

Delayed hemorrhage is as a rule in direct proportion to the damage of the spleen pulp and the large splenic vessels. In delayed hemorrhage the signs and symptoms may be vague and delayed for varying periods of time, from several days to several weeks.

An excellent classification by Councellor divides delayed hemorrhage into three groups: (1) Intersplenic minor hemorrhage with secondary rupture of the spleen; (2) perisplenic hematoma which may become encystic, supurate, become organized or rupture into the peritoneal cavity producing fatal hemorrhage, and (3) continous slow hemorrhage from the onset of the accident, the symptoms being dependent upon the severity of the case, whether the hemorrhage is copious, moderate, or delayed.

A diagnosis is usually made from the following points: (1) History of trauma, left side, (2) difficult breathing, (3) pain in left shoulder, (4) abdominal rigidity, (5) signs of shock, hemorrhage, rapid pulse, cold clammy skin, subnormal temperature, decreasing hemoglobin and red cell count with leukocytosis, (6) dullness in upper left quadrant, (7) signs of external injury may or may not be present.

TREATMENT

The treatment in all instances should be surgical, either a splenectomy or in certain selected cases a possibility of suturing. At the same time means must be employed to combat shock, as heat, morphine, and blood transfusions. Autotransfusions are used in many instances due to possible delay in getting donors, as described by Coley[3]. Medical or expectant treatment should in no instances be relied upon, for the time element between a ruptured spleen and operation is directly proportioned to the results obtained.

Connors[4] says, "Immediate operation should be performed regardless of the patient's condition, and splenectomy is the operation of choice." Contrary to this are views of Armitage[5] and McIndoe[6] who say, "To operate on a patient suffering with systemic shock is unpardonable."

RESULTS

The exact function of the spleen is unknown, but over a long period of time it has been known that individuals can survive a normal existence without the presence of a spleen. It has been shown from autopsy records over a long period of time that in individuals who have had spleens removed, accessory spleens are present in many instances, and in many instances the accessory spleen has attained a size almost that of a normal spleen. There is an increased enlargement of the abdominal lymph node, thereby giving a compensatory action with the aid of the bone marrow. As stated before, the mortality is in proportion to the time element between rupture of the spleen and operation, and in those instances in which a diagnosis is made early and a splenectomy is done immediately, the mortality is markedly reduced.

CASE REPORT

Patient admitted to Bethany Hospital, March 17, 1934, discharged April 19, 1934;

female, age 33, white, married; occupation, housewife.

History as obtained from husband: While riding in an automobile on the intercity viaduct, patient's automobile was struck by a passenger bus, causing patient to be thrown from her car to the pavement. Patient was unable to arise, and on being placed in another automobile she complained of slight abdominal pain, but it was seemingly minor, so she was carried home, arriving about 4 p.m. Pain became increasingly worse, and her doctor (H.W.K.) was called. On examination he found no skin abrasions, but extreme tenderness along both the right and left costal margins with marked generalized abdominal pain and tenderness associated with extreme pallor. Patient was immediately sent to the hospital (about 6 p.m.).

At 6 p.m. blood examination showed hemoglobin 60 per cent, red cells 3,170,000, white cells 19,700. At 7 p.m. hemoglobin was 50 per cent, red cells 2,120,000, and blood pressure unobtainable. At 7 p.m. I (L.W.A.) saw her in consultation at which time patient was unconscious and pulseless, with marked abdominal distention, extreme shock, and obviously impending death.

An exploratory laparotomy was immediately indicated, at which time a transfusion of 600 cc. of citrated blood was given. During the patient's conscious moments Dr. H.W.K. stated she complained of a severe pain in her left shoulder, and in view of that fact plus the foregoing history and examination, a diganosis of ruptured spleen was made.

OPERATION

Under ether anesthesia a left rectus incision was made, and on opening the peritoneum extreme pressure was encountered, free blood escaping. The spleen was examined and found to be torn through its short axis to and into the pedicle without any possibility of repair. The pedicle was clamped and sutured with number one plain catgut, following which hemorrhage continued. Further examination revealed a branch of the superior mesentery artery had been torn, which was clamped and tied. The diaphragm was examined rapidly and found intact, also the liver was uninjured. The wound was closed in layers without drainage.

Patient was returned to her room in good condition, temperature 97.4°, pulse 108, respiration 20. The following day 600 cc. of citrated blood was given. Her convalescence was uneventful other than pain along the right and left costal areas.

x-Ray examination revealed fractures of the right twelfth rib and of the left tenth and eleventh, position fair. There was no evidence of fractured vertebrae.

Patient was discharged April 19, 1934, in excellent condition and was seen May 25 at which time she had no complaint and had regained her normal status. She was seen again October 1, 1934.

PATHOLOGICAL REPORT—GROSS

Specimen consists of a spleen weighing 210 grams and measuring 12½ by 8 by 7 cm. The spleen is markedly distorted by a stellate laceration beginning in the hilar region. The splenic pulp is quite macerated and hemorrhagic throughout. The hilar vessels have evidently been pulled from the hilum. There are numerous subcapsular hemorrhages. The splenic pulp in the region in which there is no draining is quite firm and does not scrape easily. The malpighian bodies are not noted and the trabeculae are indistinct.

HISTOLOGICAL PATHOLOGY

The capsule of the spleen is not particularly thickened. The pulp of the spleen shows the sinuses unusually distinct, many of them being lined by swollen endothelial cells. In other places the pulp seems to be normal and shows nothing very unusual. There is some accumulation of brown pigment. Considerable numbers of diffuse hemorrhages are seen scattered throughout the pulp associated with some necrosis in the adjacent tissue. Pathological diagnosis is laceration of the spleen with diffuse hemorrhages.

This patient was seen on October 1, 1934, at which time she was in excellent health, having regained her normal weight and her complete blood count having returned to normal. Contrary results by Smyth[7] are reported as follows: "Our experience has been that prolonged observation and treatment of even a mild degree of anemia is necessary and worth while. In no case has the blood picture returned completely to normal."

CONCLUSIONS

1. A traumatic rupture of the spleen with splenectomy and recovery is reported.
2. Diagnostic symptoms enumerated, chief of which is pain in left shoulder following an abdominal injury.
3. Treatment of shock by transfusion.
4. Immediate surgical procedure, as splenectomy.

PRESIDENT'S PAGE

COUNTY MEDICAL SOCIETIES

To the Members of Kansas Medical Society:

The county medical society is the port-of-entry to the state society and through it to the American Medical Association. It is the hub of organized medicine around which all affairs medical rotate.

The purpose of the county medical society is to unite into one organization the physicians of that county or district for their mutual benefit and to promote the welfare of the community at large.

A county society to achieve any measure of success must follow certain methods to bring about the desired results and the first step in this direction is to secure the greatest membership obtainable from among the eligible and ethical physicians in that particular community —100 per cent strong is advocated. In order to accomplish this goal the society must offer such attractions to the nonmember that he will eventually realize the good things he is missing and seek entrance to the fold.

It is of paramount importance that the officers of the society be selected with an eye to the fitness and ability of the man for a particular office. And when, or if, you find a secretary who is par excellent, and of which there are a number of outstanding examples in our state, make him perpetual secretary, as a large measure of the success of a county society depends upon the effort, energy and enthusiasm of the secretary.

The same plan as used in the selection of officers should be followed in the appointment of chairmen and members of all committees. In particular, I would stress the selection of the appointments for the program, economics, public policy and legislation or similar committees.

The program committee should make the arrangements of attractive, instructive and progressive programs its first and foremost concern. It is an excellent idea to have guest speakers at stated intervals but in the main, I favor the major part of the papers be given by members of the local county society for the more they put into the work the more they get out of it. Olin West, Secretary of the American Medical Association, has so ably said, "As I see the matter, one of the most important duties of the county medical society is to provide opportunity to develop its own members, in writing about medical subjects, and in their ability, whatever it may be, to get up and discuss intelligently and intelligibly. The real, fundamental duty of a county medical society is to make every member a better student and a better speaker and a better writer so that he may contribute to the common fund of knowledge."

We believe there should be an occasional meeting devoted to the economics of the profession; if not the entire program, at least the greater part should be given over to the consideration of these problems.

In our opinion there is nothing that promotes good fellowship and understanding as an evening dinner meeting. It is a good idea to include the wives and sweethearts at these dinners as this intensifies the feeling of harmony and friendliness. The annual banquet of the society should be a regular function and one of the high spots in the life of the organization. The ladies should be included in this event also. The program for this occasion need not be confined to scientific addresses, but should be more of a frolic where each can forget the cares and perplexities of the every day life and spend a few hours in mutual enjoyment and relaxation.

We favor a public meeting, at least once a year; preferably during health week. At that time it would seem advisable to have an outstanding guest speaker address the meeting. In order to make a success of such a meeting it would be well to interest civic leaders, public office holders, various clubs and organizations. This would possibly require some work on the part of the members, but I believe the result would be worth the effort.

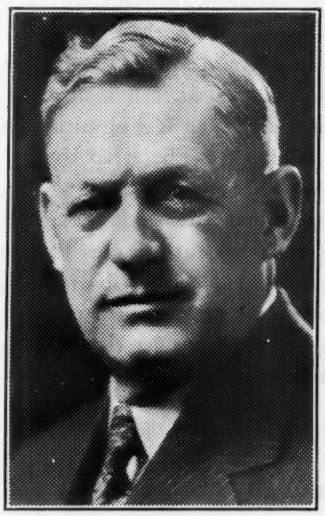
Many of our county societies publish a monthly bulletin giving a list of its officers, various committees, and a report on the program and local news of interest. A copy of the bulletin is then sent to our Journal to be used as news items in that publication. The issuance of a bulletin is an excellent idea and one we would recommend. The cost would be negligible if typed or mimeographed.

(Continued on Page 31)

EDITORIAL

THE PRESIDENT

Among the events of the Kansas Medical Society none is more important than adding one more name to our long list of devoted and distinguished presidents. The honor this year goes to Dr. J. F. Hassig whose capability and years of experience in Society work have well fitted him for the responsible position he will hold.



J. F. HASSIG, M.D.

Dr. Hassig was born in Galena, Ill., on February 21, 1875, and came to Kansas in 1882 with his parents. His father located in Brown County, and built the first house in the present town of Reserve.

At the age of 21 years, Dr. Hassig had graduated from the Kansas University School of Pharmacy, and in 1899 became a graduate of the College of Physicians and Surgeons in Kansas City. During 1900 he interned at St. Margaret's Hospital in Kansas City, and subsequently has practiced in that city.

In 1914 and 1915 he was secretary of the Wyandotte County Medical Society, and in 1916 was elected president of that organization. At the state meeting of 1917 Dr. Hassig became secretary of the Kansas Medical Society which position he held until 1934 when he was asked to accept the presidency. During 1918 he was commissioned as captain in the Medical Corps of the United States Army, and served overseas at Base Hospital Number 60. In 1923 he received an appointment to the Kansas Board of Medical Registration and Examination, and at the first meeting thereafter was selected as chairman, a position he still holds. He represented the Society as delegate to the American Medical Association meetings from 1927 to 1933 inclusive, and in 1931 was president of the Kansas City Southwest Clinical Society.

Dr. Hassig at present is attending surgeon at St. Margaret's Hospital, active surgeon at Bethany Hospital, and surgeon at Providence Hospital. He is a fellow of the American Medical Association and of the American College of Surgeons, a member of the Kansas City Academy of Medicine, a medical director of the American Savings Life Insurance Company. and is active in civic and state affairs.

His efficiency as an official of the Society needs no comment. His presidential year should be an eventful one for Kansas organized medicine.

CLINICS

The attitude of the American Medical Association toward clinics is in accord with traditional principles of medical practice. The majority of physicians utilize their hospital affiliations in the diagnosis and treatment of seriously ill patients, but to realize the full value of hospital facilities the hospital should be considered, first of all, as a diagnostic plant. The laboratory. *x*-Ray, electrocardiograph and other instuments of precision, aid in determining conditions beyond the scrutiny of case history and physical examination, are essentials in general medical practice and can not be duplicated in every doctor's office. The diagnostic equipment of a hospital should be used more generally for diagnostic survey of patients requiring complete examination. This would widen the scope of usefulness of the hospital to physicians and to the community they serve.

In spite of the difficulty which hospitals are having in meeting overhead expenses some institutions have reduced the cost of service by establishing a single laboratory fee on admission, entitling patients to the required laboratory tests. This fee in some instances is six dollars and in one instance a fee of five dollars includes all necessary laboratory work, and tissue examination. These plans are worked out on a non profit basis and the laboratory will break even if the fee is collected in approximately two-thirds of the patients. Such arrangement serves to stimulate the use of laboratory aids in diagnosis, brings extensive laboratory investigation within the reach of those of low income and extends it to charity cases without loss to the hospital. With these organized facilities and a staff of qualified specialists for any desired consultation or special examination, many physicians believe that the hospital is the logical center for clinical medicine, and that the type of clinic which will meet with the approval of the majority of the medical profession, is the hospital in which the staff is a group of colleagues utilizing the facilities of the hospital for diagnosis.

THE PATIENT AS A HUMAN BEING

Osler once said to his medical students, *"And remember, there is something more to the patient than arteries and bones, veins and nerves."* Perhaps those of us who have practiced a good many years, who have read those noble lines, recall them more often as we grow older. Sometimes one thinks that even in organic diseases of a serious nature, the mental suffering is worse than the physical. We physicians ourselves are notorious for allowing things to trouble us—if nothing more than being peeved when our competitor gets the case. In other words the "something more" of Osler's dominates us. Many of us who have had some illness along the trail, with ourselves or our families, do not so much remember any particular medical treatment but we can never forget the kindness and sympathy shown us by our brother physician in the time of our anxiety.

Old Dr. Dafoe of the North Woods, quintuplets fame is to be envied. We are told he charges three dollars for a confinement case, and other fees we suppose are in proportion. Yet the man seems to be happy. He is quoted as saying of those in the small corner where he practices, "They are good people. I would not think of leaving them." The truth is that while the professional dead-beat does take the joy out of practice, there are, nevertheless, at this time, tens of thousands of the best people who are in tragic circumstances through no fault of their own. These come to the physician, helpless, exactly as he would come if fate had put him in their place. After all it is a mere accident of birth whether a man is a physician, an author or a ditch-digger. The earth covers us all at last and it is noteworthy that the green grass is no respector of persons. It is as kindly on the grave of the pauper as it is over the millionaire. The grass does justice to both. So that one should remember that in these trying times there is a real need to consider the patient not as a mere laboratory specimen but rather as a human being.

T. C. Hinkle, M.D.

"BLOWING HOT AND COLD"

Greed is a powerful slayer of morals. The ethical practices of business and professions soon fall to the demand for increased profits. It is too common a practice for pharmaceutical houses of rather high standing to place a new product before the physician, get his cooperation in building up a large sales volume and then abandon the profession and by radio, direct advertising in the lay press and other forms of ballyhoo tell the public that the product will surely cure them because "your physician prescribes it".

Some of these insults are perpetrated by houses that have profited handsomely through the sale of their products to the medical profession. The "pain killer" and similar advertisements in the women's magazines should lose these houses the respect and patronage of all ethical physicians unless there is a change in

their methods.

Physicians undoubtedly aid in these pernicious practices by too often lending their support to every new hatched combination that appears. A few more minutes thought in prescribing would stop at least the "hot blast" from these vendors of self medication.

THE COVER DESIGN

The editorial board has chosen the cover as found on this issue after much discussion and deliberation. The design was drawn by Brad Thompson following a selection of the subject by the editorial board. In considering the matter it was interesting to learn that there are very few symbols which are used to represent the general practice of medicine. The most usual symbol is the Staff of Asclepiades which consists of a serpent twined about a staff. The United States Army Medical Corps uses the Caduceus as its symbol. Both of these devices seemed to be too closely allied with the superstitions and folk-lore of medicine rather than the science and art of the profession.

One of the members of the board suggested that the most used instrument by all branches of the healing art was the stethescope. Dr. Mills had on his desk a reproduction of one of the first stethescopes which is essentially a hollow wooden tube enlarged at one end for the ear piece. This is combined in the design with a present day binaural bell type stethescope.

The history of the stethescope is most interesting because of its close relationship with some of the most brilliant minds of the profession. Réné-Théophile-Hyacinthe Laennec in 1819 invented the first instrument for listening to the sounds within the thorax. It was quite crude consisting of a rolled cylinder of paper but with this instrument he perhaps did some of the most brilliant work on diseases of the chest that medicine has ever recorded. He published his observations in a book called "Traité de l'auscultation mediate". His differentiation of bronchitis, bronchiectasis, emphysema and pneumothorax stand today as corner stones of knowledge of diseases of the chest. Laennec died at the age of forty-five of pulmonary tuberculosis and some writers state that many of his accounts of the signs of phthisis were observed in his own body.

The refinements in the original stethescope were a change in the shape of the tube, turned work to make it a more attractive piece of equipment, widening of the ear piece to better adapt it to the shape of the external ear and a widening of the chest piece into the form of a cone or bell.

The birth of the binaural stethescope is shrouded in some controversy, however Harvey Cushing in his "Life of Sir William Osler" states that Osler should have credit for making the original binaural instrument. He had the idea which was made concrete by a Paris instrument maker. The variation of this type instrument is legion. The simplest type is the one shown in the cover design. There are diaphragm chest pieces, bell shaped chest pieces, combinations of the two, thumb rests, rubber chest pieces and so on ad lib.

It is interesting to some of the younger men to know that stethescopes were not generally used until rather recent times. One of the members of the staff whose father was a physician recalls seeing his father pull a silk handkerchief from his pocket, cover the patient's bared chest and lay his ear over various parts of the thorax.

The design is original and we think, quite attractive. It has behind it a wealth of association in the development of internal medicine. It represents a rather young instrument but one which is now universally used. Like all other instruments its development has been slow and many active minds have improved its appearance and adaptability. The material between the ear pieces is still more important than the shape of the chest piece.

"Less than 50 per cent of patients in general hospitals pay professional fees. Physicians in hospitals, clinics, and their offices render free service valued at $300,000,000 a year."—Colo. Medicine.

LABORATORY

BIOPSY

C. ALEXANDER HELLWIG, M.D.
Wichita, Kansas

The late master of pathology, Prudden, had a sign on the wall of his laboratory which read: "No specimen without clinical information will be accepted for examination." In biopsy, close cooperation between clinician and pathologist is more necessary than in any other diagnostic procedure. The surgeon should reveal at least his clinical diagnosis and the source from which the specimen is obtained.

I receive sometimes small bits of tissue, unaccompanied by any clinical data, with the request: "Look for cancer cells." There seems to be the opinion that cancer cells can be recognized under the microscope as safely as tubercle bacilli and that tissue diagnosis deciding on life and death of a patient can be entrusted to technicians and veterinarians (Rector). In spite of the perfection of optical lenses and staining methods we still are unable to diagnose cancer from a single cell. Study of cell characteristics is one important part of histological diagnosis, however it relies on the arrangement and the polymorphous character of many tumor cells in a given case, not on the structure of a single cell.

From this consideration it follows that the proper selection and faultless preservation of the biopsy specimen is as important as the competence of the man behind the microscope. If the patient has a cancer of the uterine fundus it does no good to send the pathologist a piece of the cervix. Not less helpful is it to send him tissue of the neighborhood instead of the tumor itself. All ulcers are covered with a dirty membrane which is dead and of no use in the diagnosis of cancer. Do not send this to the laboratory.

To make a tumor diagnosis possible the removed tissue must be prevented from decomposing or drying out. Have a bottle containing ten per cent formalin on your instrument table and drop the tissue therein as soon as it is removed.

Many surgeons who fear that biopsy may disseminate tumor cells use the cautery for removal of tissue. This practice distorts the appearance of the cells so that often a histological diagnosis is impossible. Remove the tissue with a sharp knife and tissue forceps and, if you wish, sear the cut surface with the cautery afterwards. It is true that biopsy being a surgical procedure cannot be regarded as absolutely harmless. Besides the complications of any operation, hemorrhage, infection, unexpected injury to organs, one must consider the special dangers pertaining to the incision into tumors, namely stimulation of growth and dissemination of cancer cells through the blood and lymph vessels.

Therefore, biopsy should not be employed before other means of obtaining information have been tried. Except in ulcerated accessible tumors, biopsy should be used as a last resort after the less serious clinical methods of diagnosis have failed.

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MEDICAL SCHOOL CLINIC

PEPTIC ULCER IN CHILDHOOD: GASTROENTEROSTOMY ON A SEVEN YEAR OLD BOY*

C. C. NESSELRODE, M.D.,†
L. E. GROWNEY, M.D.,
MAURICE A. WALKER, M.D.†
Kansas City, Kansas

Chronic peptic ulcers of the stomach or duodenum may occur in childhood. Proctor brought this fact to the attention of the American medical profession in 1925, reviewing the nineteen cases described in earlier medical literature and adding three from the Mayo Clinic. Dickey reported three more cases in 1926. Of these twenty-five cases, five were first diagnosed at autopsy, eleven at operation, and nine clinically; the diagnosis in several of the latter was confirmed at operation. Kennedy, in 1933, described six more cases and endeavored to classify the peptic ulcers of children according to age groups and symptoms.

Ulcer of the newborn, which makes known its presence by melena neonatorum, is an acute lesion, as are also those peculiar ulcers of children from a few weeks of age to about the end of the first year of life which tend to occur in

*Abridgment of a paper read before the Western Surgical Association, Saint Louis, December 8, 1934.

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certain geographic localities, Acute ulcers may follow cerebral injury or extensive burns in children as well as in adults.

There remain two other groups, in each of which the ulcers are of a more chronic type in the sense that they may be present for a long time, and hence represent more nearly the kind of lesion affecting adults. Among children less than nine or ten years of age, the familiar syndrome characteristic of uncomplicated ulcer is usually absent; frequently abdominal pain, nausea, and vomiting have occurred, but not according to any usual or typical character or sequence. The condition has been found occasionally when an operation was performed because of some other diagnosis and, in some cases, the diagnosis was made when the development of the complication of hemorrhage, perforation, or obstruction caused symptoms similar to those of the adult patient. The second group is composed of children over nine or ten years of age, and particularly after puberty, when peptic ulcer usually assumes its characteristic features and symptoms, making it easily recognized.

As Proctor has clearly stated, "The most important single factor in the diagnosis is the realization that chronic peptic ulcer occurs in children." The roentgenologic signs of ulcer in children are not different from those in adults, so far as is known. Satisfactory treatment for most patients has consisted of a properly chosen diet, rest, and the administration of alkaline powders. Surgical procedures have been resorted to when strict treatment failed to control the symptoms, when complications developed, or when, as in our patient, an inferior family environment and subnormal social status made the maintenance of an adequate medical regime impossible.

REPORT OF CASE

A seven year old boy of indigent and ignorant American stock complained of cramps in the epigastrium on March 29, 1934. These became more severe and were followed by vomiting of water, mucus, and partially digested food. The following day, the cramps and vomiting were worse. His mother administered a proprietary laxative tablet, after which the vomitus was streaked with bright red blood. Late that evening, violent cramps of the muscles of his extremities resulted in his being taken to St. Margaret's Hospital.

The boy was dirty, sallow, and undernourished, with prominent ribs and sunken eyes. His temperature was 102.6° F.; pulse rate, 164; and respiratory rate, 28. His abdomen was flat, with moderate tenderness in the epigastrium. A diagnosis was made of gastroenteritis due to infection, with dehydration and tetany resulting from vomiting. Physiologic solution of sodium chloride was administered subcutaneously. The vomiting and epigastric pain ceased, and the temperature and pulse rate returned to normal within forty-eight hours. The patient left the hospital on April 4.

On April 10, cramps in the epigastrium began again. He vomited every few hours and, in the afternoon of April 11, hematemesis recurred. He was again taken to the hospital. His temperature was 98.6° F.; pulse rate, 100; and respiratory rate, 22. Physiologic solution of sodium chloride was administered subcutaneously and, as before, the boy rapidly improved. On April 12, the concentration of hemoglobin was 71 per cent, and there were 5,130,000 erythrocytes in each cubic mm. of blood. On April 14, fluoroscopic examination of the gastro-intestinal tract by Dr. L. G. Allen showed a definite and persistent deformity of the duodenum which he interpreted as being due to a duodenal ulcer, with moderate dilatation of the stomach resulting from partial obstruction.

At 2 a.m., April 16, the boy began to vomit large quantities of dark red blood with some clots. His pulse became rapid and weak. By noon vomiting ceased. The concentration of hemoglobin was 52 per cent, with 2,430,000 erythrocytes in each cubic mm. of blood. A transfusion of 300 cc. of citrated blood was done, and repeated on April 20. A regime of diet, alkaline powders, and antispasmodics was instituted. Convalescence was uneventful and the patient seemed to have no further symptoms suggesting disease of the digestive system. On May 10, the day he was dismissed from the hospital, the concentration of hemoglobin was 65 per cent, with 4,440,000 erythrocytes. The parents were taught how to continue the medical regime at home, financial aid being furnished.

On June 12, 1934, severe epigastric pain again occurred, and he was said to have vomited a large quantity of blood before he was brought to the hospital on the following day. The concentration of hemoglobin, however, was 77 per cent, and there were 6,000,000 erythrocytes in each cubic mm. of blood. As usual, the boy improved rapidly with hospital care. That the blood had been concentrated by dehydration

was demonstrated by laboratory examination on June 26, after free administration of fluids; the concentration of hemoglobin was 58 per cent, with 3,740,000 erythrocytes.

At operation, on June 28, the duodenum was found to be adherent to the liver. An ulcer with calloused margins was palpable, perforating the posterior and superior walls of the first portion of the duodenum. In an attempt to partially occlude the duodenum proximal to the ulcer, the anterior wall was plicated with sutures of chromic catgut. A posterior gastroenterostomy of the usual type was done.

Convalescence was uneventful. Regular diet was given after the tenth postoperative day. Fluoroscopic examination on August 1 showed ingested barium passing freely from the stomach through the gastroenterostomy stoma; no barium was seen to pass through the pylorus into the duodenum. The patient left the hospital on August 3, thirty-six days after the operation. He was apparently in good health, and has so continued.

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Edited by William C. Menninger, M.D.

CHILDREN OF TUBERCULOUS FAMILIES

The authors began the study of the fate of children in tuberculous homes in 1926 and in 1927 they began to vaccinate some of the children with BCG. In 1931 they added to this procedure heat killed human tubercle bacilli. An untreated group was matched with the treated group to act as a control for the experiment. Judging by the results obtained with over 1000 children, BCG is not only harmless but apparently decreases the mortality due to tuberculosis. In a more detailed analysis of the observation of ninety-five children known from birth and exposed to tuberculosis during the first year, it was indicated that 1.8 per cent of the ones receiving BCG died of tuberculosis and 9.7 per cent of the controls died of tuberculosis.

Keressturi; C.: Park, Wm. H.; Vogel, P. and Levine, M. Fate of Children of Tuberculous Families. Am. Jr. Diseases of Children, 48:507-516 (Sept.) 1934.

CHRONIC ARTHRITIS

Dr. Irons points out that the treatment of arthritis requires the revision of current medical opinion concerning the nature and importance of the disease as well as the method of attack. He considers arthritis a major cause of suffering and says that it entails greater economic stress than any other disease of the temperate climate. Its etiology is diverse and it affects the whole body rather than merely certain organs. No single type of treatment will benefit all arthritis patients as their symptoms rise from various causes. Therapy must necessarily be individualized to meet the needs of each patient. Therapy based on the concept of the disease as a general one, will meet the requirements of a larger number of patients, and the number of those patients too far advanced to be greatly helped will be materially decreased.

Irons, Ernest E. The Treatment of Chronic Arthritis: General Principles. Jr. Amer. Med. Assn., 103:1579-1583. (Nov. 24) 1934.

TREATMENT OF CHRONIC ARTHRITIS

Orthopedic consultation should be obtained at the beginning of chronic arthritis before deformity has occurred as the attempts to correct deformity are quite unsatisfactory while prevention is comparatively easy in the early stages. Light splints are used to prevent deformity and to lessen pain. Often deformed joints can be corrected by braces, applied serially, various apparatus that cause forced stretching, by manipulation and by surgery. However these joints are never so good as before the deformity. Therefore the orthopedic surgeon should work with the medical man from the very beginning of the arthritis and they should never relax their efforts to promote normal physiologic function and to prevent deformity.

Swain, Loring T. The Orthopedic and Physical Therapeutic Treatment of Chronic Arthritis. Jr. Amer. Med. Assn. 103: 1589-1594. (Sept.) 1934.

EXERCISE TOLERANCE IN ANGINA PECTORIS

The dependence of the diagnosis of angina pectoris upon purely subjective description of the patient's symptoms as given by the patient, as well as the lack of standardized instruments for gauging the severity of the disease is cited by the writers. From a clinical standpoint it is important that the physician witness one of the patient's attacks in order to study it. An exercise tolerance test was devised as a method of precipitating an attack and as a method of measuring the amount of exertion required for an attack. This test is of distinct value in diagnosing angina pectoris, and serves to evaluate the condition of the patient and the results of therapy applied to his condition.

Riseman, J. E. F. and Stern, Beatrice. A Standardized Exercise Tolerance Test for Patients with Angina Pectoris on Exertion. Amer. Jr. Med. Sciences. 188:646-659. (Nov.) 1934.

TRANSMISSION OF VIRUS DISEASES IN MAN

Various diseases contracted by man from animals are discussed by Dr. Meyer, including rabies, Rift Valley fever, louping ill, foot and mouth disease, infectious anemia of horses, dog distemper and psittacosis. The latter is discussed at length and the author suggests the public could protect itself from psittacosis if all would appreciate the danger in contact with birds and refrain from it, but the love for pets seems to be so strong that such refrain cannot be expected. The only possible alternative is that each pet shop be inspected and the infected birds be destroyed. Dr. Meyer concludes that these diseases contracted by man from animals illustrates the complexities of a relatively new field of medicine. As a reservoir of human virus disease the animal kingdom offers many intriguing possibilities and surprises.

Meyer, K. F. Virus Diseases of Animals Transmissible to Man. Ann. of Internal Med. 8:552-569, (Nov.) 1934.

PRESIDENT'S PAGE

(Continued from Page 24)

Some of the county societies with a small membership may not consider these suggestions as practicable, but we believe they are if two or more adjoining societies would unite in joint meetings at stated intervals throughout the year.

There is one more factor that will contribute largely to the success of the county society and that is the prompt payment of dues to the local secretary on the first day of January of each year. It is imperative they be paid by February 1st. (See Chapter 10, Section 14, of the Constitution and By-Laws of the Kansas Medical Society.)

The county society is your society and it is your duty to become thoroughly acquainted with the affairs and proceedings of your organization. You are defrauding and cheating yourself if you are negligent about your attendance. The society will do as much for you as you will do for it so why miss any of the benefits?

Get into the game. Don't be a slacker. Put your shoulder to the wheel and push. Push hard and make the hub spin in the direction of medical progress, professional unity, and public welfare.

J. F. Hassig, M.D., President.

NEWS NOTES

Committees of the Kansas Medical Society for 1935 were recently announced by Dr. J. F. Hassig, president, as follows:

EXECUTIVE COMMITTEE OF COUNCIL

J. F. Hassig, M.D., Chairman.....Kansas City
H. L. Chambers, M.D.....Lawrence
Geo. M. Gray, M.D.....Kansas City
O. P. Davis, M.D.....Topeka

PUBLIC POLICY AND LEGISLATION

E. C. Duncan, M.D., Chairman.....Fredonia
J. D. Colt, Sr., M.D.....Manhattan
E. C. Morgan, M.D.....Clay Center
J. F. Hassig, M.D., Ex-officio.....Kansas City
H. L. Chambers, M.D., Ex-officio.....Lawrence

SCIENTIFIC WORK

H. L. Chambers, M.D., Chairman.....Lawrence
L. S. Nelson, M.D.....Salina
E. G. Padfield, M.D.....Salina

PUBLIC HEALTH AND EDUCATION

H. E. Haskins, M.D., Chairman.....Kingman
H. F. Hyndman, M.D.....Wichita
Forrest A. Kelley, M.D.....Winfield
C. R. Lytle, M.D.....McPherson
V. E. Chesky, M.D.....Halstead

BUREAU OF PUBLIC RELATIONS

J. F. Hassig, M.D., Chairman.....Kansas City
H. L. Chambers, M.D.....Lawrence
Geo. M. Gray, M.D.....Kansas City
O. P. Davis, M.D.....Topeka
H. E. Haskins, M.D.....Kingman
W. S. Lindsay, M.D.....Topeka
L. G. Allen, M.D.....Kansas City
W. M. Mills, M.D.....Topeka

HOSPITAL SURVEY

E. S. Edgerton, M.D., Chairman.....Wichita
L. D. Johnson, M.D.....Chanute
R. W. VanDeventer, M.D.....Wellington

CONTROL OF CANCER

C. C. Nesselrode, M.D., Chairman.....Kansas City
J. L. Lattimore, M.D.....Topeka
Frank Foncannon, M.D.....Emporia
H. L. Snyder, M.D.....Winfield
F. R. Croson, M.D.....Clay Center
N. E. Melencamp, M.D.....Dodge City
J. G. Missildine, M.D.....Wichita
Milton B. Miller, M.D.....Topeka
Marion Trueheart, M.D.....Sterling

MEDICAL HISTORY

W. S. Lindsay, M.D., Chairman.....Topeka
E. D. Ebright, M.D.....Wichita
H. C. Sartorius, M.D.....Garden City

SCHOOL OF MEDICINE

L. G. Allen, M.D., Chairman.....Kansas City
A. R. Chambers, M.D.....Iola
C. F. Young, M.D.....Fort Scott
L. R. McGill, M.D.....Hoisington
O. E. Stevenson, M.D.....Oswego

STORMONT MEDICAL LIBRARY

W. C. Menninger, M.D., Chairman.....Topeka
G. I. Thacher, M.D.....Waterville
T. E. Horner, M.D.....Atchison

NECROLOGY

J. T. Axtell, M.D., Chairman.....Newton
E. E. Morrison, M.D.....Great Bend
C. M. Vermillion, M.D.....Pratt

AUXILIARY

E. J. Nodurfth, M.D., Chairman.....Wichita
J. B. Carter, M.D.....Wilson
C. A. Boyd, M.D.....Hutchinson
W. G. Emery, M.D.....Hiawatha
A. C. Armitage, M.D.....Kinsley

DUES

Information concerning dues and membership reports for 1935 was recently forwarded to all secretaries of county medical societies.

Dues for the year will be $8.00 per member as the House of Delegates at its 1934 meeting established an annual amount of $10.00 and adopted a plan for 1935 enabling a loan of $2.00 per member from the defense fund if such additional funds are found to be necessary.

All payments should be made to county secretaries. Promptness is requested that new membership records may be completed without delay.

DEATH NOTICES

Dr. Lee Cowan, 52 years of age, died at the Missouri Pacific Hospital, St. Louis. Mo., on December 9. He was born at Taos, Mo., on November 8, 1882, was a graduate of Ellsworth Central Medical College, St. Joseph, Mo., in 1906, and had specialized in eye, ear, nose and throat since post-graduate work at the Charity Infirmary, Chicago, Ill., in 1916. He had practiced in Atchison since 1923, and was formerly located at Iatan, Mo., Parker, Kans., and Falls City, Neb.

Dr. Hugh B. Hawthorne, 46 years of age, died at Mineral, Kansas, on December 24. He was a graduate of the Kansas Medical College of Topeka, in 1913, and had practiced in Concordia, Kansas, until 1919 when he located in Mineral.

Dr. Samuel H. Murphy, 72 years of age, died at Yates Center on December 26. He was a graduate of Eclectic Medical College, Cincinnati, in 1896, and had practiced in Yates Center and Chanute since that time.

Dr. Merle K. Scott, 56 years of age, died at the Community Hospital, Pittsburg, on December 10. He was born at Coyville on April 16, 1878, graduated from University Medical College, Kansas City, Mo., in 1901, asd had practiced in Frontenac until 1929 when he located in Pittsburg.

MIDWINTER MEETING

The council will hold its annual midwinter meeting in joint session with the executive secretary committee at the Chamber of Commerce Building in Kansas City on January 15. Drs. Ned Cheney, K. L. Druet, E. G. Padfield and L. S. Nelson, Salina, will also attend to outline plans for the 1935 state meeting at Salina.

SALINE COUNTY SPEAKERS

Dr. W. R. Dillingham, Salina, in charge of publicity and scientific exhibits for the state meeting to be held at Salina on May 8-9-10, 1935, has authorized the following announcement:

"Saline County Medical Society desires to have one or more of its members appear on the program of each of the county societies between now and the date of the state meeting.

The local men have some well written papers on various subjects, and at some time during the meeting wish to invite those present to come to Salina in May, 1935."

Dr. Dillingham has a list of available speakers and subjects which he will forward to any society interested.

SICKNESS INSURANCE

The bulletin reproduced below was forwarded to presidents of county medical societies on December 18.

Subsequently, a draft of the bill proposed by the American Association for Social Security Incorporated has been received which provides compulsory insurance for persons receiving incomes to and including $250.00 monthly, does not provide for indigent persons, and establishes lay and political administration of care given by physicians, dentists, hospitals and nurses. The bill is presently being studied by officials of the Society, and will be presented at the January meeting of the council for official action.

"A rumor is prevalent that the "American Association for Social Security Incorporated", composed of Bishop Francis J. McConnell, Jane Addams, Alfred I. DuPont and other social insurance advocates, intends to introduce sickness insurance legislation into the next session of the Kansas legislature, and legislatures of other selected states.

Although no definite data can as yet be obtained, it is said that the following provisions are contemplated·

1. Establishment of a state health insurance commission.

2. Creation of a state health insurance fund financed by employers contributing 1½ per cent of their pay rolls, by employees paying 3 per cent of their wages, and by the state appropriating an amount equal to 1½ per cent of total pay rolls of employers.

3. Payment of cash benefits for hospitalization, and medical, maternal and dental care.

4. Authority within the state commission, or local councils, for disbursement under panel systems, arbitrary fee schedules, selected salaried physicians, official hospitals, clinics, laboratories, etc., and other types of medical care they may desire.

This proposal may require considerable activity by the medical profession. While there are no objections to insurance assistance in payment of medical obligations, many objections result to the public when political and

lay administration of medical attention are added. As a matter of preparedness, it has been deemed advisable to provide county societies with all available data from the American Medical Association on the general problems involved. It is believed better organized action will be possible in combatting measures of this kind deemed to be unfavorable if every member is fully acquainted with first hand information.

Since it is impossible to forward sets of the enclosed data to all members, a suggestion is offered for your consideration: That you appoint a committee to study these pamphlets, and others to be forwarded, with the request that the commitee report its views for general dicsussion AT THE EARLIEST POSSIBLE MEETING of your Society.

Additional bulletins setting forth more data received, and any official action taken by the Council at its January meeting will be forwarded. Also comments and suggestions from your committee and society wil be appreciated."

BROWN COUNTY IMMUNIZATION

The Brown County Medical Society participated in an interesting immunization campaign which is reported by that organization as follows:

The county commissioners authorized diphtheria immunization for all children in the county between the ages of six months and ten years. Dr. W. G. Emery, Hiawatha, county health officer, was selected to direct the campaign, all twelve members of that society offered their services, and coöperation was secured from the county superintendent of schools, and local school authorities. Letters from the State Board of Health and the county superintendent were mailed to all teachers accompanied by request blanks. The blanks were distributed to parents, and newspapers coöperated in urging all to take advantage of the plan. Completed blanks were plotted on a map according to school districts, an attempt was made to divide applicants evenly among physicians, and a central point was selected for twelve districts with each physician, insofar as possible, in charge of a district within his locality. Two physicians were selected for Hiawatha, three for Horton, and one each for Morrill, Everest, Padonia, and Willis. Parents were asked to bring infants and pre-school children to their nearest school.

First toxoid was given on December 20 with physicians arriving at schools before their opening, and completing treatments before noon. A second series was given in the same manner on January 3.

Toxoid was furnished without cost by the State Board of Health, physicians received $25.00 each and mileage from the county, 77 school districts were visited, and 1400 children were immunized.

Similar plans have been used recently in other counties, and the State Board of Health has offered free toxoid and its facilities to any counties interested.

MEDICAL REGISTRATION

Dr. C. H. Ewing, Larned, secretary of the Kansas State Board of Medical Registration and Examination, has announced that the following new licenses were granted by that board in a meeting at Topeka on December 11-12.

By examination: James Adlai Brown, Jr., M.D., Kansas City, Mo., a graduate of Howard University in 1934; Percy Craig Carter, M.D., Kansas City, Mo., a graduate of Meharry Medical College in 1934; Jefferson Davis Fowler, Jr., M.D., Kansas City, Mo., a graduate of Meharry Medical College in 1934; Francis Wyatt Huston, M.D., Winchester, Kans., a graduate of Rush Medical College in 1934; Kenneth Milton Johnson, M.D., Kansas City, Mo., a graduate of University of California in 1934; Edgar William Miller, M.D., Fort Riley, Kans., a graduate of John A. Creighton Medical College in 1899; Richard Everett Speirs, M.D., Spearville, Kans., a graduate of State University of Iowa in 1933; Roland Boyd Scott, M.D., Kansas City, Mo., a graduate of Howard University in 1934; Frank Riggall, M.D., Prairie Grove, Ark., a graduate of University of Western Ontario in 1934; James Robert Tyner, M.D., Alton, Ill.. a graduate of Washington University in 1934; Philip Butler Marquart, M.D., Lane, Kans., a graduate of Howard Medical College in 1931.

By reciprocity: Thomas Peck Butcher, M.D., Wichita, Kans., a graduate of Rush Medical College in 1934; Maurice Desmond Curran, M.D., Kansas City, Mo.. a graduate of University of Kansas in 1932; Clifton Franzmann Hall, M.D., Topeka, Kans., a graduate of University of Louisville, Kentucky in 1930; Herman Klapproth, M.D., Halstead, Kans., a graduate of University of Texas in 1929; Beatrice Martha Lins, M.D., Lawrence, Kans., a graduate of University of Wisconsin in 1927; Roscoe Murray Needles, M.D., Beloit, Kans., a graduate of State University of Iowa in 1932; Maurice James Ryan, M.D., Kansas City, Kans., a graduate of St. Louis University in 1933; Harry Coleman Tomlinson, M.D., Burlington, Kans., a graduate of Washington University in 1931.

MEDICAL RELIEF

Considerable data has been compiled by the executive secretary office concerning medical care of indigent persons in Kansas. Although received entirely from unofficial sources it is believed to be substantially correct.

A representative portion is shown below. In general all data indicated that medical care is being furnished to indigents but that the major portion is being furnished gratuitously.

Barton County: The county society has contracted with the county commissioners to care for all persons on direct relief for which an amount of $1300 is paid annually to the society treasurer. Members accept calls as they are received, and the fund is utilized to pay dues and organization expense. The contract also permits the society to select the county health officer which provides an annual salary of $1200 and may be rotated among members. Present objection is that no provision is made for KERC workers thereby causing a large amount of charity work.

Brown County: The county has no county physician, and the county health officer cares for inmates of the county jail and poor farm. By agreement with the county commissioners, persons on direct relief receive office calls, home calls, medicine, surgery and hospitalization on a family physician-patient relation for which the county pays 50 per cent of regular fees. KERC and work relief recipients cause the major burden since no provision exists for them except extra days work allowance for medical care. Experience has been that they are unable to pay for the care after it is given.

Cloud County: Several physicians contract with the county commissioners for care of indigents in their vi-

cinity. A salary is paid which includes calls, ordinary medicine, and mileage. Surgery is furnished by these physicians on a 50 per cent fee basis, and hospitalization is provided for 66⅔ per cent of the lowest ward rate. An objection is made that patients are unable to select a physician of their own choice.

Comanche County: No county physician exists, and physicians handle indigent cases for the county on a 75 per cent fee basis. The county commissioners have ruled, however, that KERC workers are not indigent. They are cared for without reimbursement excepting what can be collected from extra days work given to the extent possible. All medicines are furnished by the county.

Dickinson County: Indigent persons are cared for on a family physician-patient relation, and fees of 40 to 50 per cent are allowed when authority can be obtained from case workers. Hospitalization is handled similarly for 50 per cent of regular charges. Main objection is the formality required for approval which results in much charity work.

Ellis County: County commissioners in that county have insisted that all indigent medical care shall be handled by the county physician. Except where case workers can persuade the commissioners to have the county physician handle particular KERC cases, these and many others are cared for by physicians without remuneration.

Franklin County: All physicians participate in a plan whereby 50 per cent of fees are paid by the county commissioners for work authorized. No distinction is made between work and direct relief, and the plan is operating satisfactorily.

Kingman County: Outside of cases attended by the county physician, no payment for indigent medical care is allowed except $35.00 for major surgery when approval is secured. The county commissioners have proceeded on a theory that other attention should be included in relief budgets which has not produced reimbursement for physicians inasmuch as extra funds can not be provided in the budget or are spent elsewhere.

Mitchell County: Drugs, hospitalization and nursing obligations are paid from the county poor fund as rendered. Medical care, when bills are allowed, are usually arbitrarily reduced to 50 per cent. Last year $2141.65 was paid by the county for professional services which included a school immunization campaign. Major objection is the number of cases disapproved.

Osborne County: Contracts are furnished individually to physicians which provide that if approval is secured from the county poor commissioner fees of $1.00 for home calls, $0.50 for office calls, $0.12½ per mile outside of town for mileage, $3.00 for anesthetics, and $10.00 for obstetrical cases are to be allowed. No payment is permitted for minor or major surgery, but $2.00 per day is allowed for hospitalization. No differentiation is made between KERC workers and direct relief. The plan has proven extremely unsatisfactory since fees do not permit reimbursement for costs, and as surgery and attention to persons not approved must be handled gratuitously.

Sedgwick County: Free clinics and indigent medical care through coöperation of the medical society, county commissioners, chamber of commerce and the community chest have been consolidated into a rotating charity staff plan. Applicants are approved by a bureau for purposes of determining whether they are actually indigent. Care is administered by a rotating staff of members at the county hospital. Payment of $200.00 per month is made to the society. The plan has operated satisfactorily.

Smith County: A county physician receives $90.00 per month for which he cares for the county health work, and all indigent cases in the city of Smith Center. Outside of Smith Center he receives 40 per cent of his regular fees. Surgery is authorized in emergency cases for which a county surgeon receives 50 per cent fees. A private hospital is operated for indigents by a registered nurse who receives $25.00 per week. Frequently cases are sent to Bell Memorial Hospital. Other physicians receive 50 per cent fees on authorized cases. November payments in the county totaled $740.00 for medical care, and present plans are said to be satisfactory.

Washington County: A county physician receiving $150.00 per year plus an allowance for medicine and mileage cares for the majority of cases. Except in a few instances where the county poor commissioner authorizes other physicians to assist for a 25 or 50 per cent fee, the remainder is charitably handled. Surgery and hospitalization are paid only by agreement in advance, and $25.00 is allowed for major operations, $5.00 for anesthetics, $5.00 for *x*-rays, and $2.00 per day for hospital care. Generally, only the most serious cases are approved for payment. KERC workers are a major problem since 20 per cent of the families in that county are receiving relief.

Representatives of the Kansas Medical Society are holding conferences with KERC officials, and considerable other activity is being devoted toward making more satisfactory plans available.

MEMBERS

Dr. L. G. Allen, Kansas City, returned recently from a meeting of the Radiological Society of North America at Memphis, Tenn.

Dr. A. J. Anderson, Lawrence, was reelected as chief of staff of the Lawrence Memorial Hospital at a meeting, December 12. Drs. H. T. Jones and L. S. Powell, Lawrence, were respectively elected as assistant chief of staff and secretary.

Drs. C. D. Baird, W. E. Janes, and W. S. Moonlight, Eureka, assisted Dr. Clifton Hall, Topeka, in conducting a free tuberculosis clinic at Eureka on December 6. One active case, one inactive case, and nineteen negative cases were found. Thirteen cases were placed under observation.

Dr. Andrew P. Brown, who located in Alton following his graduation from Kansas University Medical School in 1932, moved his office to Osborne on December 1.

Dr. Marjorie G. Eberhart resigned her position on the student health department staff at Kansas State College, Manhattan, to become head of the physical education department at Central Normal College, Danville, Ind.

Dr. Clifton Hall, Topeka, assisted in a free tuberculosis clinic at Eldorado, December 4-5.

Dr. Arthur Hertzler, Halstead, has been invited to appear on the program of the Southeastern Surgical Conference to be held in Jacksonville, Fla., on March 11-12-13.

Dr. E. F. Morris, Hays, is supervising a routine physical examination campaign for high school students in that city.

Drs. C. C. Nesselrode and L. F. Barney, Kansas City,

(Continued on Page 36)

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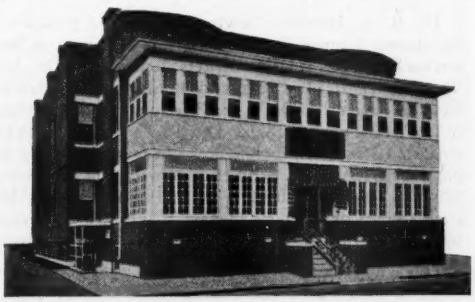

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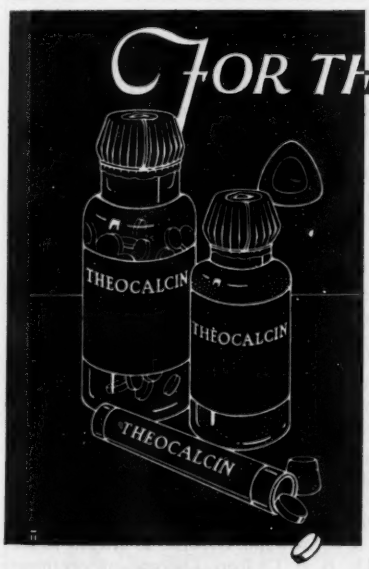

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COUNCIL ACCEPTED

THEOCALCIN
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attended the meeting of the Western Surgical Association at St. Louis, Mo., December 6-9.

The Journal office received a letter from Dr. Ludwig Frank, Jerusalem, Palestine, on December 15, requesting a copy of an article by Dr. E. G. Padfield, Salina, on Congenital Hypertrophic Pyloric Stenosis which appeared in the January, 1934, issue of the Journal.

Dr. H. R. Ross, Topeka, addressed a meeting of the Parent-Teacher Association, and high school students at Argonia on November 20. He also spoke at meetings of the Oak Grange, Topeka, on November 30, and of students of a business college, Topeka, on December 11.

Dr. A. L. Spafford, St. Paul, has reenlisted for another six months as physician for the CCC camp at Toronto.

Dr. C. Omer West, Kansas City, attended the meeting of the Mississippi Valley and Southern Dermatological Societies at San Antonio, November 4-8.

COUNTY SOCIETIES

The Allen County Medical Society elected new officers at a meeting in Iola on December 28. Dr. F. L. B. Leavell, Iola, will be president; Dr. O. R. Christian, Iola, vice president; Dr. C. B. Stephens, Iola, secretary; Dr. J. T. Reid, Iola, treasurer; Dr. R. R. Nevitt, Moran, delegate; Dr. J. T. Reid, Iola, alternate delegate; and Dr. A. R. Chambers, Iola, censor.

Dr. L. F. Barney, Kansas City, and Dr. C. C. Conover, Kansas City. Mo., attended a meeting of the Anderson County Medical Society in Garnett on December 19. Dr. Barney spoke on the history of domestic and foreign medicine, and Dr. Conover showed pictures and slides concerning "Progress of Internal Medicine."

A meeting of the Atchison County Medical Society was held at Atchison on December 4. Dr. Horace Carle, St. Joseph, Mo., gave a paper on "Hypoglycemia", and Dr. Charles Greenburg, St. Joseph, Mo., on "Trans-Urethal Prostatectomy". A visitor, Dr. Ralph Byrne, Cleveland. O., and members of the society discussed the papers.

The Barton County Medical Society held a dinner meeting for members and their wives at Hoisington on December 6. Following the dinner, officers were elected for next year with Dr. T. J. Brown, Hoisington, re-elected as president, and Dr. L. R. McGill, Hoisington, reelected as secretary. The wives attended a movie during the business meeting.

Members of the Bourbon County Medical Society held an annual banquet and election of officers at Fort Scott on December 17. Officers elected were: Dr. R. L. Gench, Fort Scott, president; Dr. R. J. Dittrich, Fort Scott, vice president; Drs. J. J. Cavanaugh, R. O. Crume and J. R. Newman, Fort Scott, censors; and Dr. J. R. Pritchard, Fort Scott, delegate. Drs. C. C. Conover and E. R. Deweese, Kansas City, Mo., discussed signs and symptoms of early tuberculosis, and illustrated their talks with films and pathologic slides.

The Brown County Medical Society met in Hiawatha on December 7. Decision was made that county cases will be cared for on a fifty per cent fee basis with a minimum fee of $1.50 per call, and 10c per mile for mileage. Plans were also outlined for a county subsidized immunization campaign. Officers elected for the new year are: Dr. W. G. Emery, Hiawatha, president; Dr. Van Curtis Van Voorhis, Robinson, vice president; Dr. C. A. Wyatt, Holton, secretary; and Dr. R. T. Nichols, Hiawatha, censor.

Members from Ellsworth, Russell and Ellis counties attended a meeting of the Central Kansas Medical Society at Russell on December 13. Dr. Ralph Fellows, Topeka, and Dr. G. Wilse Robinson, Kansas City, Mo., appeared on the program. Dr. F. S. Hawes, Russell, was elected president for 1935; Dr. F. K. Mead, Hays, secretary; and Dr. C. H. Jameson, Hays, censor.

Dr. E. C. Duncan, Fredonia, was a guest speaker at a meeting of the Crawford County Medical Society in Pittsburg on December 6. New officers were elected as follows: Dr. W. S. Swart, Girard, president; Dr. C. M. Gibson, Pittsburg, vice president; and Dr. C. B. Bell, Pittsburgh, secretary.

Dr. R. H. Hertzler, Newton, was elected president of the Harvey County Medical Society at a meeting in Newton on December 3. Other officers elected were: Dr. A. G. Westfall, Halstead, vice president; Dr. A. S. Hawkey. Newton, secretary; Dr. E. E. Peterson, Halstead, delegate to the state meeting; and Dr. R. S. Haury, Newton, censor. A scientific program was presented consisting of a paper by Dr. Wm. F. Schroeder, Newton, on "Osteomyelitis"; a case report by Dr. L. E. Peckenschneider, Halstead, on "Von Gierke's Disease"; and two case reports by Dr. David C. Stahlman, Potwin, on "Secondary Anemia".

At a meeting of the Leavenworth County Medical Society on December 3 the following officers were elected: Dr. A. R. Adams, Leavenworth, president; Dr. W. L. Pratt, Leavenworth, vice president; Dr. A. A. Gausz, Leavenworth, secretary; and Dr. A. J. Smith, Leavenworth, censor. Selection of a delegate to the state meeting was postponed until later in the year.

The Lyon County Medical Society held its annual meeting and election of officers in Emporia on December 4. Dr. David R. Davis, Emporia, was elected president; Dr. C. F. Hoover, Staffordville, vice president; and Dr. C. H. Munger, Emporia, secretary. Afterward Drs. J. B. Brickell, and D. L. Morgan, Emporia, presented papers. On December 18 the society members were guests of St. Mary's Hospital, Emporia, at which meeting case reports were discussed by Drs. Clyde Wilson, H. W. Manning and C. S. Trimble, Emporia.

A program consisting of papers by Dr. H. P. Kuhn, Kansas City, Mo., on "Gall Bladder Risk, Operability and Convalescence", and by Dr. E. H. Skinner, Kansas City, Mo., on "Malignancies of the Mouth" was presented at a joint meeting of the Mitchell County Medical Society and Community Hospital Staff in Beloit on December 14.

Drs. J. E. Henshall, Osborne, O. J. Hartig, Downs, Andrew Brown, Osborne, were respectively elected president, vice president, and secretary of the Osborne County Medical Society at a dinner meeting in Osborne on November 30. Dr. J. D. Johnson, Alton, was appointed censor, and Dr. S. J. Schwaup, Osborne, as delegate to the state meeting. Dr. B. F. Chilcott, Osborne, an organizer of that society in 1904 was present at the meeting.

The Saline County Medical Society held its annual meeting at Salina on December 20, preceded by a dinner in honor of the retiring president, Dr. Harold Neptune,

(Continued on Page 38)

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—Proc. Soc. Exp. Biol. and Med., 1934, **32**, 241-245.

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Salina. Officers were elected for 1935 as follows: Dr. Ned Cheney, Salina, president; Dr. C. M. Jenney, Salina, vice president; Dr. O. R. Brittain, Salina, treasurer; Dr. K. Druet, Salina, secretary; Dr. C. D. Armstrong, Salina, censor; and Drs. E. G. Padfield and Harold Neptune, Salina, delegates to the annual meeting. Reports were received from state meeting committees, and Dr. Leo Schaefer, Salina, was appointed to investigate the advisability of securing an official society attorney to assist in handling fees involved in settlement of estates.

An unusually good attendance marked the regular December meetings of the Sedgwick County Medical Society. Drs. H. R. Wahl and Ralph H. Major, University of Kansas, addressed the society on December 4. The annual joint meeting with the auxiliary was held on December 19, and Dr. Logan Clendening, University of Kansas, was guest speaker. Prominent citizens of Wichita were invited to the latter meeting as guests of the society, which was an innovation so successful that it will probably be continued in future years. Also, officers were installed consisting of Dr. G. F. Corrigan, Wichita, as president: Dr. E. E. Tippin, Wichita, as vice president; Dr. Wilfred Cox. Wichita, as secretary; and Dr. A. W. Fegtley, Wichita, as treasurer. New members of the board of directors are Drs. G. B. Morrison, H. F. Hyndman and H. E. Marshall, Wichita. Dr. Corrigan outlined a list of projects to occupy the attention of the organization during the coming year.

Dr. W. L. Bierring, Des Moines, Iowa, was a guest of Shawnee County Medical Society at its annual dinner meeting in Topeka on December 3. Dr. Bierring prseented a movie depicting A.M.A. headquarters, and spoke on "The Educational Function of the A.M.A." A large number of members and their wives attended. Also Dr. M. L. Perry, Topeka, was elected as president for 1935, and Drs. J. H. O'Connell, M. B. Miller, Earle G. Brown and M. G. Sloo, Topeka, were elected as vice president, treasurer, secretary, and censor, respectively.

A program consisting of the following speakers and subjects was given at a meeting of the Southeast Kansas Medical Society at Fredonia on December 13: Dr. A. N. Lemoine, Kansas City, Mo., "Congenital Syphilis and Treatment by Hyperpyrexia"; Dr. Fred J. McEwen, Wichita, "Myocardial Failure"; Dr. Eugene Lacy, Kansas City, Mo., "Recurrent Mastoiditis"; Dr. S. A. Grantham. Joplin, Mo., a movie on "Joint Surgery"; and Mr. A. N. Tracewell, Kansas City, Mo., "The Crazy Doctor".

The Washington County Medical Society met at Hanover, on December 11 for election of officers. Dr. Z. H. Snyder, Greenleaf, was elected president; Dr. V. J. Wall, Mahaska, vice president; and Dr. D. A. Bitzer, Washington, as secretary. Also an informal discussion was had on current problems.

Two regular meetings of the Wyandotte County Medical Society were held at Kansas City during the month of December. On December 4, Drs. H. R. Wahl and R. W. Kerr, University of Kansas, presented pathological conferences on "Melanosarcoma of the Liver" and "Ovarian Carcinoma with Peritoneal Metastases". Also, Dr. Thomas G. Orr, University of Kansas, gave a paper on "Appendix Peritonitis" which was discussed by Drs. F. S. Carey, H. W. King, and W. H. McKean, Kansas City. A meeting on December 18 was devoted to election of officers and a business session. Announcement has been made that in 1935 four meetings will be held each month, as follows: 1st Wednesdays at Wyandotte County Court House, 2nd Wednesdays at St. Margarets Hospital. 3rd Wednesdays at Providence Hospital, and 4th Wednesdays at Bethany Hospital.

MEDICAL SCHOOL

An unnamed graduate of the University of Kansas has contributed $60,000 for the construction of a building to be used for a Children's Clinic. Dean H. R. Wahl, Dr. Frank C. Neff, Professor of Pediatrics and other members of the Medical School faculty are now making plans for this addition which they hope will be ready for occupancy the latter part of this year.

Dr. H. R. Wahl attended the meeting of the Association of American Medical Colleges held October 29-31 at Nashville, Tennessee.

Dr. Thomas G. Orr attended the meeting of the Visiting Surgeons Club at Ann Arbor, Michigan, on November 23.

The following members of the medical school faculty attended the meeting of the Western Surgical Association held in St. Louis, Missouri, on December 6-8: Drs. Thomas G. Orr, Frank R. Teachenor. Earl C. Padgett and Lawrence P. Engel.

Dr. Ralph H. Major and Dean H. R. Wahl were guest speakers of the Sedgwick County Medical Society on December 4. Dean Wahl gave the history of the Medical School and Dr. Major talked of the Island of Cos, one of the places he visited while abroad.

Dr. L. R. Calkins was the guest speaker at the meeting of the Riley County Medical Society on December 28. His subject was "Occiput Posterior".

Dr. Ralph H. Major has been invited to deliver the lectures at the Scripps Metabolic Clinic on January 10-11 at LaJolla, San Diego, California.

Drs. Buford Hamilton, H. F. Vanorden and L. A. Calkins attended the meeting of the Central Association of Obstetricians and Gynecologists held in New Orleans November 1-2-3. Dr. Hamilton is President-Elect for 1935.

NEW BOOKS RECEIVED

PERIODIC FERTILITY AND STERILITY IN WOMEN, by Dr. H. Knaus, Vienna, Austria. Published by Wilhelm Maudrich, Vienna, at $6.00 per copy.

TREATMENT BY DIET, by Clifford J. Barborka, M.D., Department of Medicine at Northwestern University, Chicago. Published by J. B. Lippincott Company, Philadelphia, at $5.00 per copy.

THE 1934 YEARBOOK OF GENERAL SURGERY, edited by Evarts A. Graham. M.D., professor of surgery at Washington University, St. Louis. Published by The Yearbook Publishers, Chicago, at $3.00 per copy.

THE 1934 YEARBOOK OF UROLOGY edited by John H. Cunningham, M.D., associate in Genito-Urinary surgery, Harvard University, Post-graduate School of Medicine. Published by The Year Book Publishers, Chicago, at $2.25 per copy.

BODY MECHANICS, by Joel E. Goldthwait, mem-

(Continued on Page 40)

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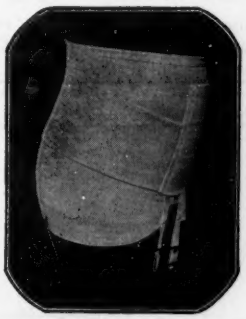

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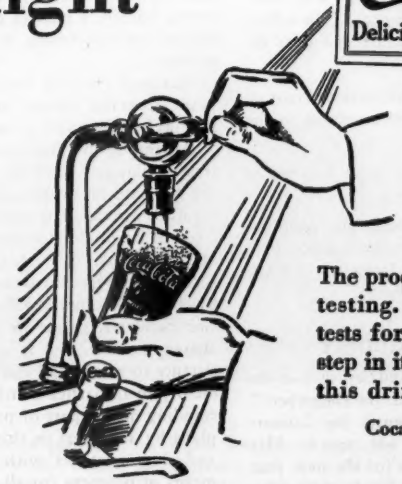

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ber board of consultants of Massachusetts General Hospital, and Lloyd T. Brown, M.D., Loring T. Swain, M.D., John G. Kuhns, M.D., of Harvard Medical School. Published by J. B. Lippincott Company, Philadelphia, at $4.00 per copy.

MORBIDITY REPORT

New communicable disease cases in the state as compared with last month are reported by the Kansas State Board of Health as follows:

Disease	Month ending December 22	Month ending November 24
Measles	973	299
Chickenpox	625	466
Scarlet fever	278	255
Pneumonia	198	90
Whooping cough	191	219
Syphilis	145	133
Mumps	126	108
Gonorrhea	110	91
German measles	77	10
Tuberculosis	70	48
Diphtheria	37	70
Smallpox	9	3
Typhoid fever	7	20
Meningitis	7	1
Influenza	7	4
Cancer	6	16
Pink-eye	4	0
Vincent's angina	4	6
Undulant fever	4	5
Scabies	4	0
Encephalitis	3	2
Poliomyelitis	2	10
Tularemia	2	2
Tetanus	1	0
Rabies	1	0

TWENTY-FIVE YEARS AGO

Excerpts From Journal, January 1910

An editorial on "maternal impressions" lists several prominent obstetricians of textbook fame who still cling to this type of "sewing circle science". The editor discusses the idea in a quite logical manner and puts his hearty disapproval on this superstition.

"In this period of advanced prices and increased cost of living it may not be out of place to call attention to the justice of increased fees for the doctor."

"Whooping cough and measles kill twenty times as many Kansas people annually as smallpox."

"Kansas was the first state to abolish the common drinking cup on railway trains and in public schools. Five other states have since followed. The latest to join the procession being the young giant Oklahoma."

KANSAS MEDICAL AUXILIARY

Members of the Brown County Auxiliary met at the home of Mrs. R. T. Nichols, Hiawatha, on December 7. Election of officers was postponed until the January meeting by reason all members were not present. Mrs. Paul Conrad, Hiawatha, outlined plans for the new year, and a scrap book for exhibition at the Salina state meeting consisting of historical and descriptive material was discussed. Mrs. A. Donahue, Los Angeles, Calif., and Mrs. E. A. Dearborn, Manhattan, were guests present. Later, members of the Brown County Medical Society joined in a social hour, and Mrs. Nichols, assisted by Mrs. Conrad, served refreshments.

The Labette County Auxiliary held a recent meeting at the state hospital, Parsons. Dr. Earle G. Brown, Topeka, was the speaker on a subject of "Accidents". Forty-five members were present.

OTHER SOCIETIES

The second of a series of notes obtained by the Executive Secretary on a trip to other medical societies.

Wayne County Medical Society: One of the most interesting county medical societies in the country is said to be that of Wayne County, Michigan, with headquarters at Detroit. Acute industrial problems, and other difficulties of so large a metropolitan center have seemingly been well overcome with excellent organization.

Membership averages approximately 1400 which is larger than many state societies. Dues are $26.00 per year consisting of $17.50 local and $8.50 state assessments. Efficiency seems to be demonstrated in the fact that membership has to no degree suffered through the depression.

Offices of the organization are located in a residence formerly a show place of Detroit. Rent is $1.00 per year by reason the owner chose to vacate the property after the house was surrounded by the outlying business portion of the city, and as he could save appreciable taxes by offering it for a non-profit use. Arrangement is in club fashion. A dining room is maintained for members, and ample space is available for parties, meetings, and executive offices.

Government is by a board of trustees, a president, and a council who have concurrent authority in matters delegated to their respective jurisdiction. In addition are thirty-three boards and committees whose action must have council or trustee sanction in matters of policy or expenditure of funds. Executive action is through a lay executive secretary, Mr. William Burns, who has been an employ since 1930. Other personnel is composed of a man assistant secretary, a man in charge of a medical service bureau, a man in charge of a credit and collection bureau, an advertising representative, and four stenographers.

Meetings are held weekly from October to May each year. Programs consist mainly of local speakers with a few invited from out of town.

An important project is an experiment which has attracted national attention due to its possible answer to the question of sickness insurance. The Pino Plan, as it is called, provides for managed credit and installment purchase of hospitalization and medical care among the lower wage brackets. A bureau owned and supervised by the society interviews patients in this classification referred by their physicians in advance of treatment. Family physician-patient relations are strictly maintained, no carrying charge is made, and it is intended through friendly assistance to arrange all cases in a manner that will be satisfactory to all parties. Further theory is that definite understanding on the part of patients, arrangement of payment plans by an expert in that line plus organized follow-up and close relations with employers tends to provide a means of payment for all persons except the unemployed. The profession, hospitals, druggists, and recipients have

(Continued on Page 42)

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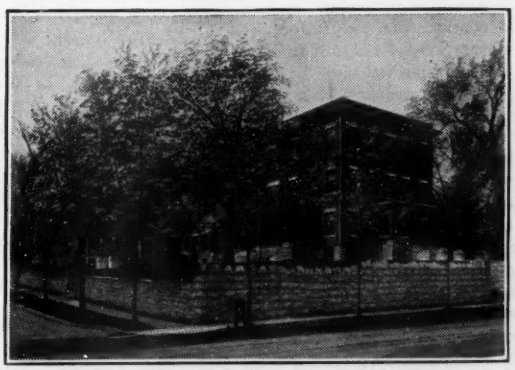

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coöperated to the extent that $50,000 in business has been transacted during brief operation of the plan with only three actual losses in 900 cases.

Considerable activity has existed in medical care of indigents through FERA assistance, and the executive secretary is the health coordinator in that territory for the state relief organization.

Radio has been utilized for several years in public health education. The two largest stations in Detroit give time gratuitously, and weekly programs are presented by different members of the society. All talks are ended with an invitation to call the headquarters for authentic information on medical subjects which has brought unusual response by letter and telephone.

A credit and collection bureau is operated by private management, but under franchise and control of the society. The manager pays one per cent of gross collections for the privilege. This system is said to be more efficient than a former plan where the bureau was entirely operated by the society.

Until recent years a laboratory was operated for members, but was discontinued through lack of further necessity in that it produced well managed private laboratories.

A publication consisting of news items and medical economic subjects is issued weekly through assistance of an editorial board. Arrangements have been made with a printer whereby the society solicits all advertising, and the printer receives as compensation all receipts excepting an agreed percentage which has run as high as eight per cent.

Foremost committees and activities are as follows: A committee on public health relations has assisted county health officers in many ways, and has arranged for city immunization campaigns thru family physicians rather than free clinics. An ethics committee curtails unfair practice, and acts through recommendation to the council which results in warning or expulsion. A public policy committee acts in all legislative functions, approves lists of candidates for election, and attends state legislature meetings. Radio talks and speakers for lay groups are provided by a committee on public health information. A cancer committee is financed by the city board of health, and provides no clinics, but disseminates public data, and compiles statistics. Industrial contract practice, factory medicine, and workmen's compensation are assigned to a committee on industrial relations. A medical civic relations committee deals with practice of medicine by hospitals, health insurance schemes, and allied problems. Library service is maintained by a library committee through coöperation with the city library. Programs for weekly meetings are sponsored by a program committee. Maternal welfare is studied by a committee. A joint committee with the Detroit Bar Association has given assistance in difficulties of expert testimony and subpoenas at inconvenient hours. Social events, parties and women's auxiliary activities are supervised by an entertainment committee. A house committee operates the cafe and headquarters.

Office records and personnel are efficiently organized. Complete biographical records are kept for all present and past members. Quack and irregular files are complete. Bulletins and questionnaires are used frequently.

MISSOURI STATE MEDICAL ASSOCIATION: This organization dating back to the Civil War has its headquarters in St. Louis, Mo., and employs in addition to Dr. E. J. Goodwin, full time secretary, a lay assistant, Mr. E. H. Bartlesmeyer, and three young women.

Membership totals approximately 3200 each year, and dues are $8.00 per member. A general fund budget for 1934 listed estimated expense at $25,700.

Their journal is accounted separately, and 36.88 per cent of salaries is charged into that fund. Until depression years it has been profitable, and since has reflected a moderate loss each year.

Committees are active, and are assigned definite projects and functions. A committee on scientific work outlines and arranges state meeting programs. One in charge of post graduate courses selects speakers, itineraries, programs, and handles arrangements with county societies. A publication committee oversees policies of the journal. One for public policy directs legislative activity. A committee administers defense. Public health education and assistance to hospitals and medical schools are delegated to a committee on medical education and hospitals. Medical economics has been an active phase of committee work, and considerable assistance has been given during the past year on medical relief. A cancer committee has extensively engaged in professional and public information.

One of their most important projects is said to be post graduate courses which have been sponsored by the association for many years. A sizeable amount is spent annually to bring speakers of prominence to county societies.

The greater part of their legislative activity has been in pointing out defects in proposed laws rather than endorsing adoption of new legislation. An exception to this policy occurred in 1934 when a lien enactment establishing physicians fees as first liens was sponsored and defeated. No basic science law exists in the state.

By-laws of the association provide that any fully paid member may receive defense aid to the extent of $300. No official defense attorney is employed, and members are asked to make their own selection through belief that local attorneys have better results before juries. Payments from the defense fund are made upon completion of suits, and are based upon expenses incurred.

The journal is directly under the supervision of a publication committee with Dr. Goodwin as editor. It consists of approximately seventy pages per issue, has considerable data in addition to scientific material, is of good appearance, and interestingly written.

Their office is well systemized and equipped. An accounting system was established by a firm of certified public accountants, and annual audits are required by professional auditors. Bulletins are extensively used. Checks are prepared by the bookkeeper, approved by the secretary, and then forwarded to the president and treasurer for final signatures. An interesting scrap book of favorable and unfavorable information is maintained from newspaper and magazine clippings which is said to be of considerable assistance. Books received for review, totaling as many as one hundred per year, are distributed to county societies maintaining libraries.

EXCHANGES

One of the peculiar effects of the depression of the past several years is the complaint of physicians, the country over, at the failure of many patients to make payment for services rendered with the same degree of care that is ordinarily given to the settlement of average accounts.

It seems to be taken for granted, in many cases, that the physician must take his place at the bottom of the list

(Continued on Page 44)

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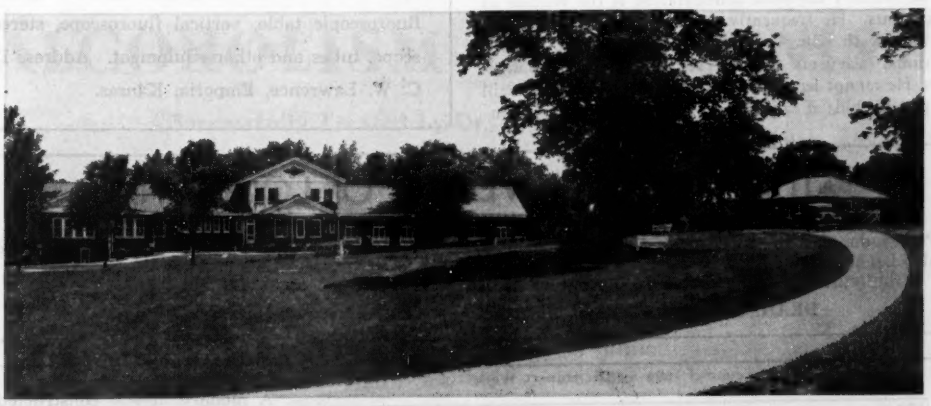

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T. N. NEESE — Business Manager
DAISY N. NEESE — Superintendent

and await his turn for payment, with the result that in many instances no payment is made at all.

The question is one that is attracting widespread attention of physicians, and it seems to be one about which there can be but one side, for certainly no reasonable man can argue that a physician is not entitled to the same consideration in the matter of compensation for service as is accorded other lines of business.

The average businessman has little patience with one who owes him a sum of money over a period of a year, and at the end of that time had paid neither interest nor principal. Ordinarily, where doubt exists, such a condition is prevented by requiring collateral in the beginning, and by collecting interest in advance. Then if payment is not made, the collateral takes care of the loan.

Time and skill represent the doctor's business capital, available at fixed rates. If he does not collect on his investment, he must either fail to meet his own obligations or borrow money and pay interest monthly to keep his credit standing or to retain his insurance or property, as the case may be.

Yet he requires no collateral for his services. The doctor does not refuse his capital to anybody, and in consequence it is drawn upon much more freely than monetary capital. If his patients cannot pay his work becomes charity. He does not even limit the use of it. In case of a sudden attack, the doctor doesn't tell you that you must get sick only between 9 a. m. and 2 p. m., except Sundays and holidays. Or that you already owe him $50 and it would be unbusinesslike to give you any more time until you had liquidated the debt. Or that he could not risk missing a call from X, Y or Z, who pay their bills promptly.

The doctor's foremost consideration is the welfare of his patients. He frequently carries the responsibility of life and death. But in too many instances he has the additional heavy tax of worry over his financial obligations. He cannot let a patient lose his life because he will not pay his bill; it would not be humane. But if his insurance or his home is at stake—well, that's just a business proposition.

A large amount of charity work is the inevitable lot of all doctors. They are too frequently imposed upon by those who can pay, but will not.—The Constitution, Atlanta, Ga.

With the coming of the new year there is the omnipresent spectre of payment of dues confronting your county society secretary. In the larger societies this becomes a task, this thing of having payment of dues strung out over a period of a full year. Paraphrasing a Pillsbury ad—"Eventually (you mean to pay your dues), why not NOW?" The sinews of war will be needed this good year of 1935 as never before; prompt payment will not only make you feel better but will hearten your officers, both local and at headquarters, no end. Cheer up your secretary by remitting the annual payment *right now*.—Jnl. Ind. Med. Assoc.

ANNOUNCEMENTS

A post graduate clinic in "Neuropsychiatry in General Practice" will be held at the Menninger Clinic, Topeka, April 15-20 inclusive. Lectures, case studies, and seminars included in the five and a half day course will be exclusively directed to the application of modern neuropsychiatric principles to the cases which the general practitioner frequently sees in this field.

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MANY a child is scolded for dullness when he should be treated for undernourishment. In hundreds of homes a "continental" breakfast of a roll and coffee is the rule. If, day after day, a child breaks the night's fast of twelve hours on this scant fare, small wonder that he is listless, nervous, or stupid at school.

Pablum offers a happy solution to the problem of the school-child's breakfast. Mothers who learn about Pablum from their physicians are delighted to serve it for it needs no cooking and can be prepared in a minute at the table—more quickly than many less nourishing foods. Pablum not only ends the bane of long cooking of cereals but in addition furnishes a variety of minerals (calcium, phosphorus, iron, and copper) and vitamins (A, B, G, and E) not found so abundantly in any other cereal.

"TOMMY, that's the third time this week you haven't learned your lesson. Why don't you listen to me when I tell you how to work the problems?"

PABLUM is rich in calcium and iron, minerals likely to be deficient in the school-child's diet yet needed in more than average amounts during childhood. Pablum is 6 times richer than fluid milk in calcium and contains 10 times more iron than does spinach. It also furnishes generous amounts of vitamins B and G, essential for normal appetite. Unlike other cereals, Pablum is base-forming, important because the growing child needs to store alkali. The nutritional value of Pablum is attested in studies by Crimm *et al* who found that tuberculous children receiving supplements of Pablum showed greater weight-gain, greater increase in hemoglobin, and higher serum-calcium values than a control group fed farina. Reprint sent on request of physicians. Mead Johnson & Company, Evansville, Ind., U.S.A.

Pablum (Mead's Cereal pre-cooked) is a palatable cereal enriched with vitamin- and mineral-containing foods, consisting of wheatmeal, oatmeal, cornmeal, wheat embryo, alfalfa leaf, beef bone, brewers' yeast, and sodium chloride.

Please enclose professional card when requesting samples of Mead Johnson products to cooperate in preventing their reaching unauthorized persons

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